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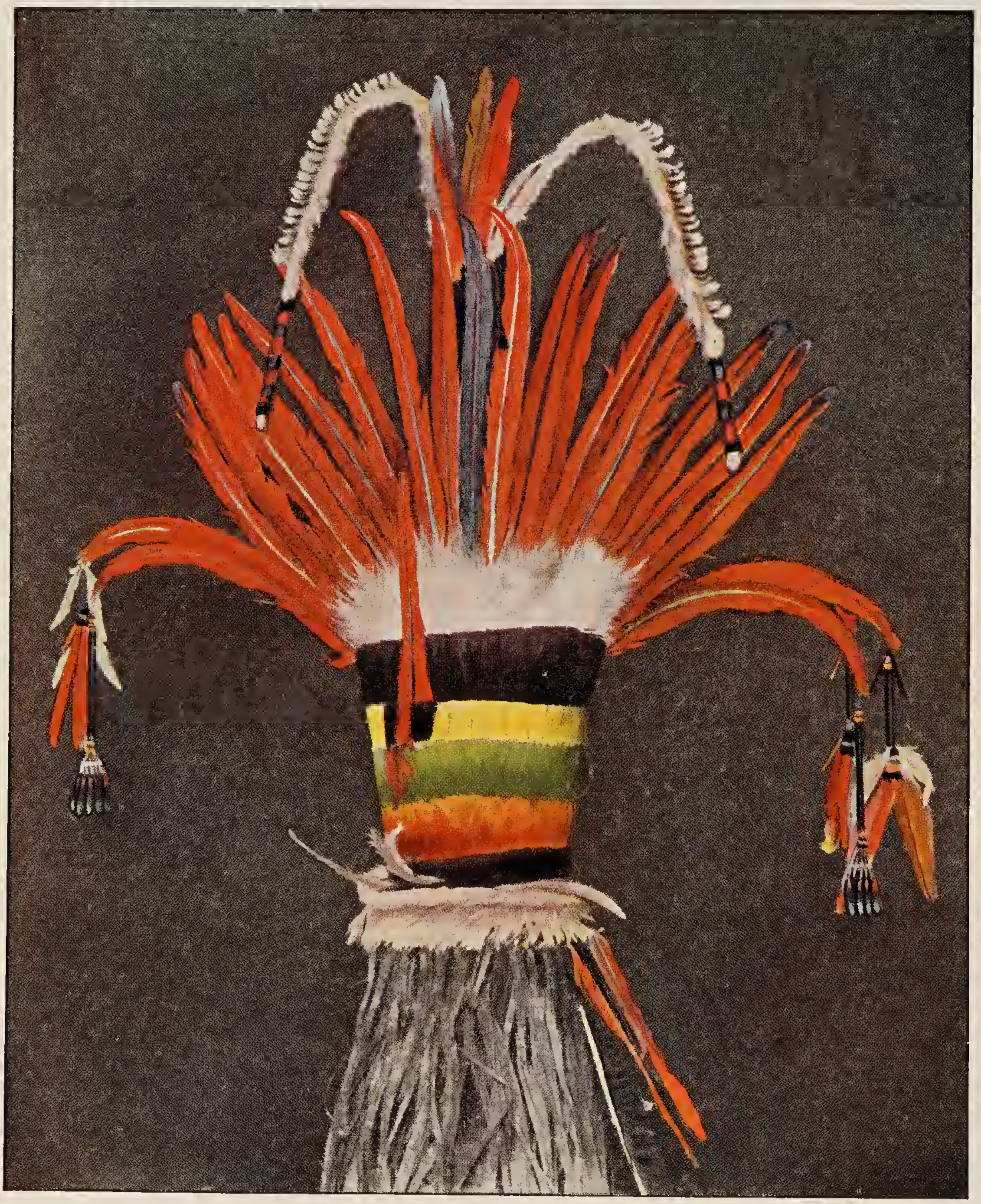

Apalaii Headdress

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ANTHROPOLOGICAL PUBLICATIONS
VOL. X

"THE CENTRAL CARIBS"

BY

WILLIAM CURTIS "FARABEE"

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NOTICE

Dr. Farabee completed the text of this volume in December, 1921. During his absence on the Museum's expedition in South America in the following year the book was in press. Upon his return in the spring of 1923, Dr. Farabee was so ill that he was unable to give his attention to the proofs or the preparation of the plates. His continued illness has made it seem desirable to see the book through the press without his supervision. The reading of the proofs, the preparation of the plates and the making of the index were tasks that fell to others in the Museum. That this work has been well and thoroughly done is not doubtful, but to the student making use of the volume I desire to make it known that Dr. Farabee had no opportunity of reading the proofs or preparing the plates or supervising the publication.

G. B. Gordon,
Director.

PREFACE

The material here presented was collected by the University Museum's South American Expedition, 1913–1916. The work was done under the supervision of Dr. G. B. Gordon, Director of the Museum, and with the assistance in the field of Mr. John Ogilvie, Sr. Joaquin Albuquerque and Dr. Franklin H. Church.

The Carib tribes, whose language, culture and somatic characters were investigated, are in contact with numerous other tribes whom we visited and whose history we have recorded in Vol. IX of the Museum's Anthropological Publications under the title of The Central Arawaks. Many similarities of culture will be observed among the tribes of these two linguistic stocks—similarities which may be due in part to contact and in part to the influence of environment.

As this is the first time that any detailed account of these tribes has been attempted, no doubt many mistakes have been made which will await the correction of future students. Some of the tribes had not been visited before, some had been located on maps by hearsay, while some had not been known even by name. The lack of interpreters at times rendered the work difficult and accounts for the brevity of discussion in certain parts.

The data concerning the interior tribes are based entirely upon personal observation by the members of the expedition. The material from the Macusis was obtained very largely from Mr. Christopher Davis, a man educated in the mission schools of Demarara, who had been living with the Macusis for fifteen years in the capacity of a voluntary religious teacher.

Besides doing the usual ethnological work, the expedition made a map of the region through which it passed, washed the streams for gold (nothing of value was found), made natural history collections and secured many rare live animals and birds for the Philadelphia Zoological Gardens.

It gives me pleasure to acknowledge my obligations to the following persons who contributed so much to the success of the expedition: To Dr. G. B. Gordon; to the President and Board of Managers for their liberal support and hearty coöperation; to Mr. H. P. C. Melville, Magistrate and Protector of Indians, for valuable information and assistance; to Christopher Davis for information and services as interpreter among the Macusis; to our four Arawak Indians, who traveled with us for six months, for faithful service; and especially to Mr. John Ogilvie, whose intimate knowledge of jungle travel made possible our journey to the interior tribes, for companionship and assistance in every part of the work.

William Curtis Farabee

December 16, 1921

GEOGRAPHICAL ENVIRONMENT

The Carib tribes under discussion are divided geographically into two groups; those of the open savannah and those of the forests. The Macusi, the largest of the tribes, occupies the northern part of the great savannah which reaches from the banks of the Essiquibo River nearly to the Venezuelan boundary and from the Amazon forests to the foot of the Pakaraima range of mountains; or in its greatest extension from about 58½° to 63° W. Long. and from 1½° to 4½° N. Lat. It is an undulating plain dotted with roundtopped grasscovered mountains and islands of forest growth. Three short ranges of mountains are somewhat forest clad: the Kanuku, between the Rupununi and the Takutu; the Moon, between the head waters of the Takutu and the Branco, and the Mocajahi, south of a river by the same name which enters the Branco from the west.

This plain at its highest part between the Rupununi and the Takutu stands at an elevation of six or seven hundred feet and is interrupted by numerous depressions which become lakes during the wet season. The waters of these lakes evaporate during the dry season, leaving behind great meadows with narrow streams whose courses are marked by lines of aeta palms which give beauty to the scenery. One of the depressions was the mythical Lake Amucu on whose shores stood the Golden City, El Dorado, of the Spaniards.

There are two short periods of the rains, in December and June, with a fall of sixty inches in the eastern and forty two in the western sections, three fourths of which falls in the latter season. The rivers cease to flow during the long dry seasons and thus confine the fish in deep pools in the bends of the rivers where the Indians obtain them by poisoning the water. When the luxurious grass of the savannah becomes dry, it is burned to kill the rattlesnakes and to drive the game in the direction of the hunters.

The presence of a never failing spring or a water hole determines the site of the village which is usually located in the open savannah a short distance from the water supply. The people may be called agriculturists although they add variety to their food supply by hunting and fishing. Their fields are located in the nearby forests. Cassava is the main crop but other vegetables and fruits are also grown. Deer may be stalked in the savannah and birds and monkeys shot in the forest.

The other group of tribes is found in the depths of the forests along the Acarai Mountains and the head streams of the rivers on both sides where the rainfall is greater, agriculture more difficult and game more plentiful. The natives here depend more upon hunting and fishing and less upon cultivation for their food supply than do their relatives of the plains. The effect of these differences in environment upon the culture and physical development of the two groups will be observed as we proceed from tribe to tribe.

The principal neighbors of these two groups are corresponding groups of Arawak tribes who are living under exactly the same physical conditions.

THE MACUSIS[1]

The first visitors to the Macusi country were the Dutch traders who made their way up the Essiquibo River to the plains south of the Pakaraima Mountains early in the eighteenth century but the first name we have associated with the region is that of the German surgeon, Nicholas Horstman, who was sent by the Dutch West India Company, in 1738, to find a passage from the Essiquibo to the Amazon and incidentally to discover the city of El Dorado. He successfully crossed the divide and reached the Negro, where he deserted the Dutch cause and remained with the Portuguese. The map he made of the region traversed he gave to La Condamine and it was published ten years later by d'Anville in the first great map of South America.[2] At that time the Macusis occupied the region north of the Kanuku Mountains and the Takutu River.

The best early account of the Rio Branco region was written about 1814 by a Portuguese priest, André Fernandes de Sousá, who gives the following list of fifteen Indian tribes living near that river; Uapixána, Paraviana, Sapará, Uatarai, Paracoana, Caixana, Macuxi, Uayca, Porocoto, Atanayru, Uayuru, Tapicari, Chaperu, Atyai and Caripuna. These tribes were then in communication with the Dutch, "crossing by a short day's journey the isthmus which separates the Itacutu from the Ripanuni." This same route was used by Col. Barata in carrying dispatches to Surinam in 1793.

Johann Natterer visited the Rio Branco in 1832 and wrote a good account of the region but his ethnological report has been hopelessly lost with the exception of his Macusi vocabulary published by Martius.

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[1] Makuschi, Macoushi, Macuchi, Macuxi.

[2] J. A. J. de Villiera, Roy. Geog. Jour., May, 1911.

In 1835, when Robert Schomburgk first visited Southern British Guiana, he found some three thousand Macusis in the same territory they occupied when first reported by the Dutch. He described the Macusis as the most beautiful Indians of Guiana, possessing rich voices, fluent speech, cleanly habits, good morals and a love of order.

Appun,[1] Im Thurn and Coudreau[2] in turn visited the Rio Branco region and gave some account of the Macusis whom they found still occupying the same old territory where they may be found today holding their own against the time now not far distant when the coming of a railroad will open up their beautiful country to the white race, and when that time arrives the newcomers will find the Macusis a delightful people, ready and willing to coöperate in any worthy enterprise.

At present there are no Macusi villages east of the Rupununi nor south of the Seriri Mountains in Guiana. Their largest villages are in the Kanuku Mountains and in the region of Lake Amucu. In Brazil their villages are found for the most part between the Takutu and the Uraracuera Rivers and the high mountains to the north. Within this area there is one large Wapisiana village on the Majari River. The Arecunas, a very closely related Carib tribe, live to the north of the Macusis and the Wapisiana Arawaks to the south. At present the Macusis are living in peace with their neighbors. Formerly they were preyed upon by the Caribs proper and the Arecunas, who captured and sold them as slaves to the whites in Surinam. The hatred engendered by former wars still persists between them and the Wapisianas. While these two tribes regard each other with suspicion they carry on trade with as little contact as possible.

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[1] Manuscript published by Lieut. Smyth, Jour. Roy. Geog. Soc., Vol. 6, 1836, pp. 11–23.

[2] See bibliography.

MATERIAL CULTURE

Houses

The Macusi house may be square, round or elliptical; very small or very large; built to accommodate one family only or sufficiently large to furnish accommodation for a dozen families. The size of a man's house depends not so much on the size of his family as it does upon the sex of the children. When a daughter marries she brings her husband home with her to live in her father's house. If there are many daughters, a very large house will be needed to protect the new families. If all are sons they will eventually leave home and a small house will suffice for the present. The houses are grouped in villages without any regularly laid out plan; they stand near together as at Puerueta or far apart on either side of a stream as at Napikeri. The village is usually located on high land in the open savannah a quarter of a mile from a stream and a long distance from their cultivated fields, but sometimes it is found on a stream with cultivated fields about the houses as at Napikeri. The high savannah location is more hygienic and more comfortable; there is more air and fewer flies and mosquitoes.

The walls of the houses are of palm leaves, bark or adobe and closely built for protection against insects and the cold winds which come down from the mountains during the dry season. The tight wall serves the more important purpose of keeping out the kenaimas, or evil geniuses, who are always lurking about at night endeavoring to injure or to kill anyone found unprotected. The walls of rectangular houses are usually made of adobe and are higher than the walls of the other types of houses. Horizontal poles are lashed firmly to the wall posts about eight inches apart, and withes, a half inch thick and as long as the height of the wall, are woven in between these poles in regular wickerwork fashion six inches apart. The adobe which has been mixed with the feet in a hole near the house is then applied on both sides making a smooth wall six inches thick.

The bark walls are usually about five feet high. The posts supporting the roof carry three horizontal stringers firmly lashed at the required heights. The heavy bark of the tirikir tree (*Hymenaca courbaril*), is cut in sections, set on end inside and lashed to the stringers, thus making a tight, smooth wall from door to door.

The framework of the house depends upon the size and type of house desired. A small round house has the centre pole only, whereas the same type forty feet high and forty feet in diameter has in addition six interior posts supporting the roof and thirteen wall posts. The odd number comes from having two posts at the single door. All the posts are forked or notched at the top to receive the plate and are set three feet deep. Near the top of the roof a binding pole is lashed underneath the main rafters. Additional short rafters are lashed between the two plates. The roof of the round house is always much steeper than that of any other type of house. The rectangular house is of simple construction having the four corner posts with one or more as needed between on the sides and the two higher end posts to carry the ridge pole.

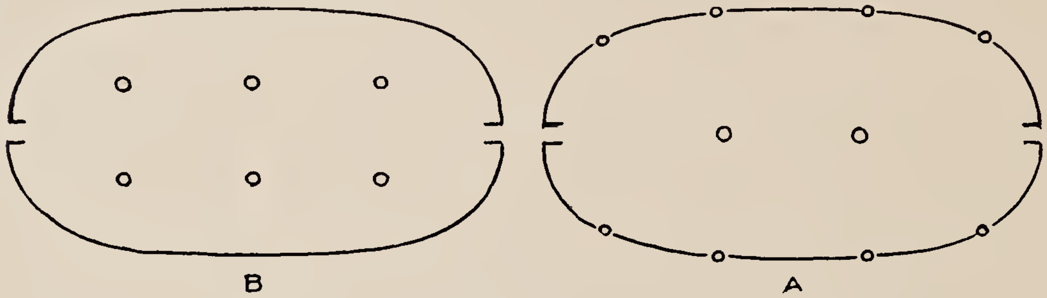

FIG. 1, A AND B.—GROUND PLANS OF MACUSI HOUSES

There are two types of frames for the elliptical houses, one having a very low wall and the other a very high wall. A large communal house 48 feet long and 24 feet wide having a seven foot wall would have eight wall posts six inches in diameter with two principal posts eight inches in diameter, 20 feet high and 12 feet apart, located near the foci of the ellipse.

The two principal posts are forked at the top to receive the ridge pole which is allowed to project about four feet beyond its supports. The wall posts support four cross beams, the two interior ones being lashed in the middle to the principal posts. The other beams have no middle support. The plates rest upon the ends of the beams. The four end rafters are heavier and have cross poles three feet from the top to support the end rafters. This leaves a small open gable which is protected by the projecting plate and its covering and allows the smoke to escape. The roof is made of the leaves of the cokerite palm (*Maximiliana regia*) with the fronds laid horizontally.

Another type of house with a wall four or five feet high has six principal posts fifteen feet high, three on a side ten feet apart. These carry two plates. The long rafters from the walls are lashed to these plates and to their opposite pairs at the top. Plate VI, K shows a house of this type with bark walls. One house at Kazawing was built on posts five feet above the ground and floored with chouta palm planks. There was a clay fireplace built in one corner on the floor. At the end, the roof projected six feet, covering the mortar and grinding place and the steps which were made of notched poles with crossbars in notches. This style seems to be an innovation here although common among the Pano of the upper Amazon.

Besides these dwelling houses there are always small work houses nearby where corn is ground in the mortar and farina is manufactured from the cassava. It is a place where all the rough work of the household is performed. Plate II gives a very good idea of the furnishings of such a house. There will be found the mortar set in the ground, the long pole pestle, the great cooking pots for making drink, the cassava graters, strainers, sieves, baking pan or oven, and the supply of wood and water.

All the large houses have two doors, one at each end, 2½ feet wide; one for men and the other for women, but in many instances only the east door is in use. The smaller houses have only one door which may be at the end or on the side. The doors of the large houses have bark or plank jambs 15 inches wide. The movable door of leaves or bark is lifted and set into place at night to prevent the entrance of mosquitoes and kenaimas. For the same reason, earth is thrown up against the wall on the outside. No crevice is left open; thus the interior of the house is so dark that the small black flies, which at certain seasons of the year are such a pest, will not enter.

The roof is made of palm leaves of different species. The rafters on the large houses are placed 2 feet apart, the fronds of the cokerite palm (*Maximiliana regia*) are laid horizontally and lashed to the rafters instead of laths. When the aeta palm (*Mauritia flexuosa*) is to be used the rafters are placed farther apart and laths are used. In making this kind of roof a part of the leafstalk is bent down and hooked over the lath, thus doing away with the necessity of tying.

THE INTERIOR

No partitions separate the apartments of different families in the communal houses. Each family has its own private section where the hammocks are hung from posts and cross beams and the individual things are kept. Each woman has her own little fireplace made of three stones near the outer wall where she does the family cooking and where she keeps her food, bowls, gourds for carrying water, and a small supply of firewood which may be needed on cold nights.

The interior of the house is dark and gloomy. There are no windows and all the light must come through the open door, the smokeholes and the joints of the bark wall. The smoke from the numerous fires has blackened the roof and the framework. The floor has become hard and smooth from the constant tread of bare feet. The soil was removed before the house was built but no other preparation for the floor was made. The floors are kept remarkably clean; no refuse being allowed to collect around the walls nor in the common central portion.

The rough work, such as preparing cassava roots and removing the husks from corn, is done either in the open or in the small work house.

The furnishings consist of stools and hammocks. There are three types of stools; a turtle shell with a large hole cut in the back to prevent its rolling over, a stump with three roots and the half of a hollow log which has the sides cut away to leave handles at the ends. When a visitor enters a house upon invitation he is asked to sit in a hammock, the best of the numerous ones which are always swinging from post to beam. When not at work, the men are often found resting in their hammocks because the interior is cool and more particularly because of the protection from the small flies.

The house is the storage place for all food and personal belongings. When corn is ripe the ears are plucked and the husks tied together in bunches of a dozen or more ears. These bunches are then hung on cross beams out of the way until needed. Large ears are selected and hung in the most secure place to be used for seed at the next planting season. Bananas are cut from the bunches in hands and strung between the rafters to ripen. Gourds and baskets hang from the rafters and beams. The baskets may contain trinkets, raw cotton, spinning outfit or nuts and fruit. Poles are often placed across the beams to form platforms upon which all kinds of things are stored. The bows and arrows are stuck into the roof as are so many other things, or they may be laid upon the platform, but the long blow gun must not be so carelessly put away because it may easily warp, twist or bend out of adjustment. It must be suspended by the end from the ridgepole. Sticks with many forks for supports are hung from the roof. They are convenient for hanging up food out of the way of the dogs which have the freedom of the house.

UTENSILS

The larger utensils, such as those used in connection with making meal, farina and cassava bread, drink for festivals, weaving of hammocks, etc., are kept in the work houses or in the centre of the large house for use in common. Only the smaller things are individual. The loom is a very simple affair composed of two upright poles with two mortises near the top and one at the bottom for cross poles which are separated the proper distance for the length of the hammock. The mortar used for grinding corn is a log of wood set deep into the hard ground. It has a slight depression in the top and a hole about 5 inches in diameter extending to a depth of 15 inches. The pestle is a pole of hard wood 10 feet long having a tapering point. The grinding is done, not by pounding, but by pressing the grain against the side of the mortar and revolving the pestle. When the grain is pulverized the pestle is removed and the meal taken out with the hand. As the grinding proceeds the meal has a tendency to work up between the pestle and the sides of the mortar, hence the depression at the top of the mortar to prevent the meal from falling on the ground. A woman can grind a quart of corn into the finest kind of meal in ten minutes. It is an easier and a more rapid method of grinding than that in which the pestle is lifted and the grain pulverized by pounding. The woman grinding usually stands on one foot with the other braced against the top of the mortar. She moistens her hands with saliva to prevent them from slipping on the pestle.

The principal food plant is the bitter cassava (*Manihot utilissima*) which is native to tropical America. It cannot be used as a vegetable because it contains a poisonous principle, hydrocyanic acid, which the Indians have learned to extract and to drive off by roasting or baking. To extract the poisonous juices the roots of the plant must first be reduced to a pulp. This is accomplished by means of a grater made by driving small sharp stones of porphyry into a soft board. The board, 2½ feet long, 1 foot wide and 2 inches thick, is cut from the broad flat root of the *Aspidospermum excelsum*. Holes are made with a bone awl, the stones driven in with a wooden mallet and the whole surface covered with pitch (*Ceroxylon andicola*) to fasten the stones more securely and to fill up the pores of the wood. The best graters are made by the Waiwais south of the Acarai Mountains. The Macusis obtain them by barter from the Wapisianas who get them from the Tarumas who are neighbors of the Waiwais. An enterprising Taruma trader living among the Wapisianas married a Waiwai girl who is a good grater maker and through her industry he supplies a large market.

The carapace of a turtle (*Emys tracaxa*) or the leaf stock of the aeta palm (*Mauritia flexuosa*) is used as a receptacle in the grating of cassava. (Plate IV, B.) Large wooden troughs are used to hold the pulp of the grated cassava until it is pressed and also to hold the stored drinks. The Macusi women stand up and hold the grater against their thighs while grating the cassava but the Waiwais sit on the ground and hold the grater between their legs. The pulp falls on banana leaves. They use the sieve also while sitting on the ground but the sieve stands up on a framework of its own and rests on a circular mat.

The wickerwoven cylindrical press which is six or eight feet long and about six inches in diameter is made of closely plaited splints from the fronds of the long leaves of the cokerite palm (*Maximiliana regia*). These different splints are continued beyond the body of the press and plaited into two loops. The one at the top is so made that it leaves the end of the press open while the bottom one closes the end of the press. When the press is filled with pulp it is hung up on a house beam or a forked pole set for the purpose, and a lever is thrust through the loop at the bottom for the application of pressure. This press, which acts on the principle of the "Siamese link," is one of the most ingenious and most important inventions made by any primitive people. It was not by chance or happy accident that the invention was hit upon. The possibilities of the use of this poisonous plant for food purposes was discovered and the press was invented for a very definite purpose. It was not an adaptation of something already in use to a new purpose, but a direct invention of a new device for a new service.

For the removal of the woody fibre from the cassava pulp, a sieve, made by plaiting splints of palm fronds, is in use. They are usually square with the sides raised by tying small sticks along the sides. Covers for pack baskets and trays for bread are made in the same way, but are usually oval or circular in form. After the pulp has been rubbed through the sieve it is ready to be baked into great flat cakes fifteen inches in diameter and a quarter of an inch thick on an oven or baking pan. The pan, 2 feet in diameter and 2 inches thick, is made of clay and has the edges turned up so it may be used for making farina as well. It stands on three stones or adobe supports eight or ten inches high, while room is left between the supports for firewood. As baking requires a quick hot fire, small wood is used instead of the larger logs which make a better fire for boiling. Metal pans are now being introduced for making farina.

Basketry

Besides the cassava presses, sieves and bread trays, which may be considered basketry work, there are many other types. The most important of these is the pack basket. It is used for all kinds of heavy work, such as carrying firewood, ears of corn and cassava roots from the fields and nuts and fruit from the forests. It is also used for carrying personal baggage on the trail. The rougher examples are made of split lianas and the finer ones of the splints of palm fronds. They are made in the form of a Sioux baby cradle, but are carried with the closed end down. The flat side which rests against the back is made secure by a framework of four small rods, two of which project below the basket and serve for supports when the basket is removed. The basket is filled while in a reclining position and a cord is laced back and forth across the open side. A flat piece of closely woven basketry or leaves may be used to cover the contents and to protect them from the rain. Men and women carry with a tump line made of the inner bark of a small cakaralli tree (*Secythis ollaria*). The line is secured one third way down the framework of the basket and is so short that it keeps the load well up on the back. (Plate XII, G.)

While no fine baskets are made by any of the tropical tribes they are all expert at making rough baskets for temporary use. For fish, game or fruit a basket of the required size is made of a single leaf in a few minutes. The material is always at hand in the forest and it is much easier to make a new basket if one is needed than to carry one along; hence there are few baskets of any value except the small telescopic shoulder baskets used by the men for carrying their trinkets. A special basket is made for the storage of farina. It is loosely woven of palm frond splints in the form of a truncated cone and made to stand on the small end. It is lined with leaves to prevent the farina from sifting through, and when filled is covered with leaves and splints firmly interlaced over the top. Put away in this form in a dry place the farina will keep indefinitely.

The women make a rough narrow mouthed basket without a lid for their own little trinkets. It is always seen hanging along the wall near the fireplace. The men spend considerable time and skill in making their trinket boxes or shoulder baskets which they carry with them on all occasions. The splints are made of the maranta plant; scraped until perfectly smooth and regular and bleached or stained black as desired. These two colored splints are woven to produce various geometrical or animal forms. The lid is made to telescope the basket and often it alone is decorated. For carrying over the shoulder, a fine cord, fastened underneath, passes around the ends and through the lid. The baskets are often decorated with tufts of bright feathers. When visiting, a man always carries this basket in which may be found his toilet articles, his ornaments, his mending things, and small objects for trade. Upon arrival at a neighboring village, a man takes a bath, paints his body and puts on his ornaments. These baskets are bartered from tribe to tribe. The Waiwais make the best ones. (Plate XXXIV.)

Pottery

The Macusis make no fine pottery but their cooking and storage pots are well made and more beautiful in form than those of any other of the tropical tribes. There is no good potter's clay in the savannah country, but if there were there is little use for it, because the calabash takes the place of pottery vessels and serves the purpose much better. It is light, durable and ready at hand. The coiling process is used in making pottery. Fillets of clay are laid on in successive layers, pressed down with the fingers and smoothed inside and out by rubbing with a pebble and a piece of calabash. The clay is tempered with ashes. The vessel is fired in the open. For a large pot, a shallow hole is dug, the pot placed inside bottom upward and a fire built over it. While the pot is still hot, cassava juice is poured over it to fill up the pores. The large pots for storing or ripening drink may hold as much as twenty gallons. They are set against the main posts in the middle of the large house for protection.

Water is carried and stored in large gourds capable of holding six quarts. The gourd is carried on the shoulder and held there by placing the fingers in the hole at the top. Small gourds for carrying water on the trail have holes on the side of the neck but the large ones have the whole end of the neck cut off. Dippers and all bowls for food or drink are made of the half shell of the calabash fruit (*Crescentia cujete*).

Spinning and Weaving

Cotton is found growing about all the villages, not in planted and cultivated fields, but individual trees or small groups here and there where they are protected. The trees are perennial and grow to a height of eight or ten feet. The women do everything in connection with collecting, spinning and weaving cotton, while the men make strings and larger cords of other fibres. The cotton is collected and stored away to dry in small leaf-lined baskets which are suspended from the roof near the ridge pole. As needed the cotton is seeded by hand and the little pads of cotton from the separate bolls are pulled out into long loose bands which are now ready to spin. A band is wound around the left wrist, one end being fastened to the small hook of the spindle, which is spun by rolling it with the right hand downward along the right thigh. While the spindle revolves the thickness of the thread is regulated with the right hand. If the woman is standing as in Plate X, B, she lifts her right leg and rolls the spindle along her thigh. She prefers to stand or to sit on a high seat in order to give more room for the suspended spindle to revolve. The finished thread is wound around the spindle above the whorl until it is full. Then small balls are made and rolled up in leaves for safe keeping until sufficient thread for a hammock, breech cloth or baby carrier has been spun. For making hammocks larger threads are needed so the threads from two balls are united and spun together. Flat work baskets are used to hold cotton spindles and balls of yarn.

The Macusis were, no doubt, the first of the savannah tribes to spin cotton and make cotton hammocks. The Wapisianas, who now make the best hammocks, say they learned to spin from the Macusis in rather recent times. The Macusis learned the art from the Arecunas. The endless warp thread is wound round and round the loom frame in a horizontal position. The loom is then turned over, making the warp run from top to bottom, and stood up against the side of the house. The weaver sits on the ground and puts the woof threads through from side to side by hand. The loom has been described. No shuttle is used, nor batten, but a chain is sometimes used to lift the outer warp threads. The hammock, instead of having solidly woven woof threads, has a number of equidistant crossbars consisting of only three entwined threads. In smaller hammocks aeta palm fibre (*Mauritia flexuosa*) is often used for the warp and cotton for the woof. Palm fibre was in common use for making hammocks throughout the

Guiana regions before the introduction of cotton spinning, as it is today by all the forest tribes. Both types are still found in many places. When the body of the hammock is finished, scale lines made of heavier cords are threaded through the loops of the warp threads at the two ends. The outer loop of the scale lines is bound and well wrapped to prevent wear. The rope for swinging the hammock is made of aeta palm fibre or of the fibre of the *Ananas* by the men. The comfort of the hammock depends much upon the proper length of the scale lines and the care with which they are arranged. The cotton hammocks made by the savannah Indians, Arawak and Carib, are the most serviceable as well as the most comfortable and convenient of any made by any people known to me. Hammocks are sometimes made for dogs by tying the ends of a broad piece of bark and suspending it with a rope.

Cotton is used also in weaving loin cloths for men. These are from one to two yards long and about eight inches in width. They are worn between the legs and suspended back and front over a plaited belt. The Waiwais usually wear a longer cloth which is made to serve as a belt as well. To put it on, the man holds one end under his chin, passes the other back between his legs around in front over his right hip, back over the left and fastens it behind with a regular timber hitch leaving eight or ten inches free to fall down over the left hip. The front is then folded down near to the knees and attached by the tassels which are allowed to hang down in front on either side of the cloth. Extra ornaments are often attached to the cloth or worn as a separate string tied over the cloth. Baby carriers, endless bands eight or ten inches wide, are woven of cotton on a peculiar loom made of four crossed sticks. Carriers are sometimes made of bark. They are worn over the shoulder, the child sitting in the loop with his feet hanging in front of his mother's hip. Her back is thus left free for the pack basket which is suspended from a bark or woven tump line over her forehead. Endless bands an inch wide are woven over pliable sticks and worn on the head by young women of marriageable age at their dances. More interesting and more difficult to weave are the leg bands or anklets from one to two inches wide woven in place. The whole bands in the collection were woven around a stick of wood. A very different type of weaving is that used in making the women's beaded aprons. A small loom, made of one bent stick held in place by a crossbar is strung with the warp threads. The woof is a string of small beads of different colors so strung that they form the designs of the apron. The loin or back apron is woven in the same fashion. This loom and the apron also are developed from the old style of apron, still worn by small girls, made of a fringe of suspended cotton strings.

The spindle in use is made of a stick of hard wood from ten to fifteen inches long having a small hook at the top. Six inches from the lower end is the whorl, a disc of stone, shell or pottery two inches in diameter, which holds the thread in place as it is wound around the spindle and adds to the momentum of the spindle when spinning.

Strings are needed for a great variety of purposes. Cotton is used for the softer, finer threads and for weaving hammocks, baby carriers and breech cloths. The twisted fibre of the aeta palm (*Mauritia flexuosa*), which grows abundantly in the lowlands, is used for making bags, nets and hammocks. Fish lines, strong cords and bow strings are made from ixtle grass (*Bromelia sylvestris*) and a variety of *Ananas* which grows on high land. The aeta palm fibre is taken from the young leaf which grows inclosed in a spike from the centre of the tree. The outer rough skin is torn off by rubbing it at the end and separating it from the fibre. To twist the fibres into strings of the desired size requires skill and long patient practice. The required number of fibres are held by the upper end in the left hand and across the bare right thigh. They are then rolled along the thigh with the right hand so that each strand twists separately; then by a backward roll these strands are made to twist about each other into a single thread. When heavier cords or lines are required two, three or more of these threads are twisted together in the same manner. The leaf of the ixtle is broad and heavy, with a tough skin. To free the fibre, the leaf is soaked in water and beaten over a rock until the pulp is softened and the fibre freed. The fibre is then washed and dried in the sun for a few days, when it is ready for use. The fibre of the *Ananas* is finer and softer but very strong, while the skin covering and pulp are soft. At the height of a man's head, a heavy cord with a loose double slip knot is tied around a small tree or house post. The leaf is split along the midrib from the bottom nearly to the top. The end of the leaf is put through the slip knot in such a way that each side of the loop tightens on a half of the leaf. The man, taking the tip of the leaf in his hands, gives it a sudden jerk which forces the leaf through the loop. The cord strips off all the soft parts and allows only the strong fibres to pass through. If the jerk is too violent the fibres break off at the top. A slow pull tightens the knot on the fibre and it cannot be pulled through. After skill has been acquired the leaves can be run through quite rapidly. The fibre is washed and dried in the sun until properly bleached and cured. This makes the strongest and smoothest cord of any of the fibres. The men collect the materials, make all the strings and cords and manufacture all the nets while the women do the spinning and weaving. Women weave the hammocks, but the men make the ropes to swing them: women make the breech cloths, but the men make the belts. Schomburgk refers to belts made of human hair and monkey hair, but none are in use today. Round and flat belts are now plaited of strips of bast or vine. Bandoleers are made of several loosely spun cotton cords or hair cords and worn as ornaments instead of long strings of seed necklaces. Schomburgk may have seen these used as belts.

The forest provides ready made splendid substitutes for the manufactured cords in the pliant stems of a great variety of lianas or creepers known locally under the general term "bush rope." A bush rope may be the size of a thread or a six inch cable; it may be one foot or a hundred feet in length. With it you may tie a bandage on your toe or haul your canoe; suspend your pipe bag or hang a horse. One must learn how to pull down a bush rope because it requires some skill and manipulation. Suppose a bush rope is hanging from a branch fifty feet from the ground. It would be impossible for a man to pull it down by a direct pull; so he twists it, keeping it tight meanwhile, then pulls hard and suddenly slackens it to allow the twist to run to the top of the rope where it kinks. Just at the instant the kink forms he gives the rope a violent jerk and breaks it off. These bush ropes are used to tie the framework of the house together, to tie the roof and the sidewalls on, to make traps and snares and baskets. The water from one slakes the thirst of the hunter while that of another is used to poison fish. No other forest product supplies so many wants.

Agriculture

The open savannah land is not suitable for cultivation without irrigation because the hot sun and the winds of the dry seasons take up the moisture, leaving the ground parched and baked before the rains come again. The fields are usually made at some distance from the village in the depths of the forest where the soil is rich and the moisture retained by the protection of the surrounding trees. During the dry season the trees and underbrush are cut down and allowed to remain where they fall. When the leaves and bark have dried out the whole place is burned over and all the smaller branches consumed. The blackened trunks with their interlocking branches are allowed to remain where they fell. No attempt is made to roll them together and burn them for a very good reason which will appear later. By this method of burning a layer of ashes is left over the whole surface of the field which adds to the fertility of the soil. The bark on the logs is partially burned. The remainder later falls off and is decomposed where it falls. This method of clearing differs from the two methods used in North America in frontier days. The frontiersman either cut down all the trees, collected them into great heaps and burned them, or he left the large trees standing and girdled them. The Carib Indian method is better for his country at least. The fallen logs hold the moisture and interfere very little with his style of cultivation. His corn, which needs more moisture than cassava, he plants along the logs where the ashes and the decomposing bark make the soil more fertile as well. For these reasons he is willing to cut down the trees which will not be decomposed before he must desert the field on account of the rank growth of weeds and other filth and make a new field. The fallen logs also furnish good pathways through the cassava fields—an Indian thoroughly enjoys walking on a log.

In preparing the field for planting, no plows or hoes are used to turn over the soil. Neither agriculture nor horticulture is the proper term to use in connection with the cultivation of the soil in these regions. The fields are new and roots are plentiful. Hence a sharpened stick is the best implement that can be used in breaking up the hard soil between the roots. The Indians now have some hoes and have adjusted iron points to their sticks but in some places they still use the old form of stick. Hills two and a half feet in diameter and eight inches high are dug up about five feet apart into which five or six stems of the cassava plant are inserted in a slanting position to a depth of a foot or more. Planting for the most part is done just at the beginning of the rainy season in May or June. This is also the season for making farina, which is stored away in baskets. The old plants are pulled up by their roots. Stems of these old plants, from two to three feet in length, are used in planting the new field. It is customary to replant the old field by inserting stems in the old hills as the cassava is used out; thus with little labor the field is kept full and growing. But this system soon exhausts the immediate soil while other rank vegetation takes possession between the hills. Very little cultivating is ever done after the first planting gets a good start. For a few months the weeds are pulled from the hills and the young shoots stripped from the stumps, but by the time the plants are six months old they have attained a height of five feet and their spreading leafy branches cover the ground and their shade holds the moisture. The days and nights are of equal length, so the hot sun of the dry season has no bad effect upon the growing plants. By this time the corn and sweet potatoes, which are planted with the cassava, have ripened and gone, leaving the cassava in complete possession. The Indians understand the value of careful selection of new seed. They make long journeys to get new varieties.

When the cassava is eight months old it is ready for use. Bread is often made of younger roots but it is not nourishing because it is composed largely of fibre with little pulp; the best age is from eight to fourteen months. After this period the roots tend to harden and become woody. Sometimes two fields of cassava are planted; one before the June rains and the other before the December rains. All other crops are planted in May because the June rains are longer continued and the plants get a better start for the dry season. It very often happens that little rain falls in December and the November planting fails for want of moisture.

The sweet cassava (*Manihot palmata aipi*) is used as a vegetable to some extent and is planted in the same field with the poisonous variety.

For many reasons cassava is the best food plant for the tropics. It requires less moisture than corn. Its roots extend deep into the earth and its spreading branches make a dense shade which prevents evaporation of moisture from the soil during the long dry season. It grows from cuttings, may be planted twice a year, may be used at any time, does not die out at the end of the season, and gives the whole crop for use. It is a poisonous plant which animals, birds and insects neither eat nor destroy. Besides, it is less difficult to prepare and more convenient for use than corn or wheat.

Corn, beans, melons, squashes, pumpkins, sweet potatoes and sugar cane are all planted to some extent in the same field with the cassava. Corn is planted along the logs where it gets the advantage of enriched soil and preserved moisture. Potatoes are planted a few hills together in the best soil. Cane is planted on the lowest ground; it grows best there, while cassava grows best on higher ground. Tobacco, peppers, pineapples and pumpkins are planted without regularity or grouping; while bananas, cashews (*Anacardium occidentale*) and the papaya (*Carica papaya*) are scattered here and there about the field.

Thus the field is planted with reference to its later abandonment. After three years of replanting cassava in the same hills the soil becomes exhausted and weeds, grass and shrubs take possession of the field. Of the great profusion of plants the two most conspicuous are the ant wood (*Cecropia peltata*) and several varieties of the passion flower (*Passiflora laurifolia*). These mat themselves together so that it is next to impossible to make a passage way through them. The fruit trees hold out against the encroaching forest for a time, and the natives return for the fruit. It is a dangerous undertaking, however, because an old field is a favorite place for poisonous snakes, and the millions of ants from their homes in the hollow stems of the ant wood make one's life miserable.

Harvest time extends the year round for cassava and sugar cane as they know no season. Corn when ripe must be collected before the next rains begin. Men set up some posts with cross bars in the field as a drying frame; then they pull off the ears and tie the husks together in pairs, while the women carry them in and hang them on the frame. When dry the corn is carried to the house where it is hung up on the crossbeams. Men usually cut and carry in the sugar cane, while the women pull up and carry in the cassava as it is needed. Men clear the fields, assist in burning and planting, but the women take care of the scanty cultivation.

Food

The Macusis live more by agriculture than by hunting and fishing. They are fond of game and make long hunting journeys into the forests. At certain seasons of the year they catch fish by poisoning the pools along the river. Fruits and nuts are eaten raw, but all meat and vegetables are cooked by boiling, baking or roasting. Meat is preserved for four or five days by roasting and smoking it continually on a barbecue. For the most part, meat is boiled because the people prize the soup quite as much as the meat itself. The soup is used for soaking the dry hard bread or for mixing with farina.

All the native animals except the jaguar, puma, anteater and sloth are used for food. Monkey meat is preferred to all other. The big black maicasapa is the best and the red howler (*Mycetes seniculus*) second. Then in turn come the birds, turtles, animals and insects. The native stalks the savannah deer (*Cervus savannarum*) and shoots it with the bow and arrow. The small red forest deer (*Cervus humilus*) is also prized. Two varieties of peccary are common in the forests; the *Dicotyles labiatus* is found in large droves and the small one (*D. torquatus*) in small groups. Both are good eating, particularly so when half grown. Many are kept as pets about the house but they have not been domesticated. The coarse flesh of the tapir (*Tapiris terrestris*) which is better than poor beef, is greatly prized. The capybara (*Hydrochoerus capybara*), the largest of all the rodents, is occasionally eaten under necessity, but the agouti (*Dasyprocta aguti*) and the paca (*Coelogenys paca*) are always eaten. The large lizard (*Iguana tuberculata*) is considered as good as a bird.

The larger birds, with the exception of the falcons, vultures and now domestic fowls, which are considered unclean, are regularly eaten. All the toucans, parrots and doves are difficult to catch or to kill, but the curassow (*Crax alector*), maroudi (*Penelope pipile*), trumpeter (*Psophia crepitans*) and the maam (*Tinamotis elegans*) are easily shot with the bow and arrow because they come when called by the Indians, who are perfect imitators. The whistling ducks (*Anas autumnalis*) are numerous in the lakes in the wet season. The muscovy (*Cairina moschata*) occurs, but not in great numbers. The great negrocope (*Tantalus loculator*) is seldom eaten, but the jabiru (*Mycteria americana*) is considered as good as duck. The small herons are so poor they are not eaten. Domestic fowls are now common, but desired only because the cocks crow in the early morning.

Two varieties of land tortoises, the small one (*Testudo tabulata*) so common in the savannah, and a large one that lives in the forest, and water turtles (*Emys tracaxa*) are greatly sought after on account of their delicate flesh. They are usually roasted whole in the shell. The savannah tortoise is difficult to find in the grass, but when the ground is burnt over they may be seen and collected in large numbers. The forest variety may be tracked in the leaves and caught. The turtles are caught on sand-bars along the river when they go out at night to lay their eggs. The soft shelled eggs of the tracaxa are about the size of pigeons' eggs and may be eaten raw or cooked. They have good food value, the granular yolk being very rich in oil. Fifteen to twenty eggs are found together in one nest. All birds' eggs found in the forest are eaten regardless of the stage of incubation.

When other food is scarce, insects are eaten. The large grub of the palm beetle (*Calandra palmarum*) is greatly prized by all who have made its acquaintance. Wasps' nests are robbed of the grubs, which are fried or parched.

Wild game is not plentiful in the savannah, but there are many fish in the rivers and the Macusis have learned to capture them in large numbers by poisoning the pools during the dry season. When freshly caught the fish are boiled and the soup used for soaking the bread. When they are taken in large numbers at a poisoning they are roasted on a great barbecue and carried home, where they are kept over the fire and smoked. There are a great many varieties of fish and all are eaten, but the most prized are the following: arapaima (*Sudis gigas*), aimara (*Erythmus macrodon*), pirai (*Sarasalmus piraya*), pacu (*Myletus pacu*), electric eel (*Gymnotus electricus*) and even the stingray (*Trigon hystrix*).

The Macusis eat salt and often rub it on the meat before it is dried. They formerly obtained their salt from the Wapisianas, who evaporated the water which collected in shallow pools about the foot of Mount Seriri. Many of the Carib tribes of the interior forests use no salt.

The principal food of all the central Carib tribes, and the Arawaks of the region as well, is the flour and bread made from the roots of the bitter cassava plant (*Manihot utilissima*) which is common throughout tropical America. It is a perennial with a slender stem six feet high and long spreading leaves which cover the ground between the hills with a dense shade. Its tapering roots six inches in diameter and eighteen inches long at maturity contain a milky juice which holds in solution a poisonous principle known as hydrocyanic acid. It cannot therefore be used as a vegetable, but the Indians have learned how to extract the juice and to drive off the poison by heat. The roots must first be reduced to a pulp by grating or rasping on an instrument ingeniously made for the purpose.

The manufacture of farina or the baking of bread is a laborious undertaking. The cassava roots are pulled up, carried home, peeled, washed and grated by the women. The grater and the other necessary implements have already been described on page 21. One end of the grater is placed in a large receptacle, usually a leaf stock or turtle shell, while the other end rests against the thighs of the operator, who, grasping a root in each hand, rubs them up and down over the angular stones of the grater, reducing them to pulp. This pulp is then forced into the upper end of the cylindrical press, which has been expanded to its greatest size, thus shortening it to half its former length. The press is then hung on the end of a beam or the fork of a pole set for the purpose and a lever passed through the loop at the lower closed end of the press. A woman sits on the end of the lever, thus stretching the press downwards and contracting its sides. The poisonous juice is forced out through the wickerwork sides of the press and runs down into a bowl at the bottom. The longer the weight is applied, the drier the pulp in the press becomes, but fifteen or twenty minutes is sufficient for all requirements.

When the weight is removed the press expands and releases the solid cylinder of dry cassava about six inches in diameter, which looks like the core of a diamond drill. The pulp is broken up and rubbed through a coarse sieve to remove the particles of woody fibre. It is now ready for baking or for making into farina. When bread is to be baked, a very hot fire is made of small dry wood, and a thin layer of cassava is spread over the entire surface of the oven or baking pan. A fan made of a palm leaf (*Astrocaryum tucumoides*) is used to spread the cassava on the pan and to turn the large cake when one side has been baked. The edge of the cake is smoothed and rounded with a small wooden paddle. When the bread is first baked, it is rather soft, but after it has dried in the sun on the house roof for a few hours it becomes so hard that it must be moistened when eaten. It will keep for months if stored in a dry place where mold will not form. While not palatable, this kind of bread contains high food value and one soon learns to eat it with relish.

It would appear that the Caribs and the Arawaks of this region learned the manufacture of farina from the Brazilian Indians in comparatively recent times. The step from making bread to making farina is not a difficult one. If the pulp on the baking pan is stirred and broken up into small particles and cooked or baked for a longer time it becomes brown and parched. In this state it is called farina. The oven for making farina should be larger, with upturned edge, making the oven two or three inches deep. The sifted cassava pulp is spread over the hot oven and stirred constantly to prevent it from sticking to the bottom and burning. After it is thoroughly cooked it is allowed to cool and then stored away in small conical baskets for future use. When made in this way it is called white farina. Another variety, called yellow or water farina, is made by the same process except that the roots are allowed to soak three or four days in water before they are grated. For the trail, farina is a most desirable food to carry. It has been thoroughly cooked and can be eaten dry, mixed with cold water or soup of any kind. It is preferred to bread because it can be mixed and eaten with so many things—with meat and fish, pumpkins, squashes, palm nut and other kinds of drink.

Among the Macusis, corn is the second most important food. It may be roasted in the ear before it matures, parched, made into hominy or ground in the mortar as already described. It is seldom made into bread by itself but is mixed with cassava, thus greatly improving the otherwise tasteless cassava bread. Nuts and seeds of various kinds are gathered and eaten. They are sometimes mixed with the cassava, when it is young and weak, to give it body and strength. The Brazil nut (*Bertholletia excelsa*) is eaten raw and greatly appreciated. It is pounded in a mortar to extract the oil which is used on the hair and on the body. The meal is mixed with cassava and made into bread or it may be mixed with mashed sweet potatoes and made into a most delicious potato bread. In extracting the oil a small press like the one used for cassava is used. Pumpkins and squashes are cooked with the meat or mashed and mixed with farina. Sweet potatoes are boiled and eaten cold, roasted or baked with nuts. Peppers of various kinds are used for flavoring. Sugar cane is used for making drink or chewed for food. A very good press has been invented for extracting the cane juice for making drink. Watermelons and muskmelons are eaten raw.

If the diet is confined entirely to cassava bread or farina it tends to distend the stomach, particularly among the children. As the children grow older, or with a change of diet, the condition disappears.

Fruits form a large part of the diet. Bananas are the most important, the plantains are known but not depended upon. The cashew (*Anacardium occidentale*), the pineapple (*Ananas ananas*) and the papaya (*Carica papaya*) are all eaten raw, when ripe, and used in making drinks. The nut of the cashew is roasted and greatly prized. The papaya fruit or leaves are cooked with tough meat to make it tender. Of the wild fruits the abiu (*Achras cainito*), the guava (*Psidium pomiferum*) and the imbira are the best. The abiu grows on a very high tree in the forest, while the guava grows on small bushes along the rivers in the savannah. The small fruit of the rubber tree (*Mimusops balata*) is delicious but difficult to collect without cutting off the limbs—a method our expedition used in getting the abiu when in dire need of food. The fruit of the bulucush palm is cut open and the milk dried for soup. The heart of the manicole palm (*Euterpe exorrhiza*) is eaten either raw or cooked. It has little food value, reminding one somewhat of cabbage. There are a number of palm fruits used for making drinks, but they contain such a small amount of pulp that they are seldom eaten raw.

Fire is made by rubbing two sticks together in the form of a chisel and groove. The chisel is held at an angle between the hands and rubbed violently back and forth along the groove until the wood particles thus produced glow with heat, when they are blown into a flame. Fire is kept burning in every house, so it is not often that fire has to be made. The Macusis now have matches and few of them know how to make fire by the old method. For kindling fire quickly when wood is damp or for making a light about camp, they use the resin from the acaiara or konima tree (*Icica heptaphylla*). It burns slowly; a lump two inches square and an inch thick would give a good light for an hour. When eating our dinner at night in the forest we often depended upon the konima tree for light. The resin is found at the root of the tree in hard lumps.

Manufacture of Drinks

The most important drinks made by the Macusis are those used at certain dances or drinking bouts which take place upon all unusual or important occasions. The greatest dance is the paricari, and the best drink is made for that dance and bears its name. The Arawaks call the drink parikara and the coast Caribs call it paiwari. It is manufactured in a similar way and used for a similar purpose among all the tribes. It is not always kept in stock because it is difficult to make. To manufacture it the ordinary cassava bread is made a little thicker than usual and while still hot is dipped quickly into cold water. A bed of banana leaves covered with cassava leaves is made on the floor in a dark corner of the house. The hot moistened bread is then spread out in layers, six feet across, until the mass is about two inches thick, the whole is then covered with banana leaves. After four days, when the leaves are removed the mass of bread has undergone fermentation and is twice its former bulk. Its whole surface is covered with a thick heavy white mold. It is now ready to be broken up and stored in large pots where it remains for two more days to complete fermentation. A small canoe or a great trough made for the purpose is placed in the middle of the dancing ground, which is usually the centre of a large house, the fermented bread transferred to it and water added to suit the taste of the expert manufacturer. At the dance, a girl is placed in charge of the drink, and after straining it through a small basket she passes it to the head man, who serves it to the dancers. It is mildly intoxicating and men often drink enough to feel its effect. Women drink it also but never to excess. The observer is astonished at the amount the men can drink. They have the ability also of emptying the stomach at will and filling it again. After some hours a drinking bout or dance of this sort becomes a disgusting spectacle. Apparently there are no evil effects produced by the drink. When the dance is over, the men immediately go to sleep and wake up hungry, but as well as usual.

Another drink is made for the paiwai dance and is called by the same name. Cassava bread is made twice its ordinary thickness and baked on both sides until it is black and charred. While it is still hot, it is rolled up in green banana leaves and stored away on the cross beams of the house. At the end of a week, it is taken down and unrolled, when it is found to be covered with a heavy mold. It is then broken up and mixed with water and casiri, or cassava juice. It is now the consistency of thick soup and somewhat intoxicating. It is used at the paiwai dance in much the same way that the paricari is used. These two drinks are made for special occasions and are not on hand at other times.

The yaposa, however, is always found in the large storage drink pot which stands against one of the main house posts. It is made of the ordinary cassava bread without fermentation in mold. A portion of the bread is chewed and the whole mixed with water. In three days the drink has reached its best stage; by the fourth day it has become too sour to drink. Upon one's arrival at any village, he is immediately offered a drink of yaposa which he finds most refreshing and even palatable, until he learns of its manufacture—when it is too late, he has acquired the appetite.

The Macusis make a variety of drinks from fresh ripe fruit. They never drink water except when on the trail. The pulpy covering of various palm seeds is extracted and mixed with water, making a thick liquid which may be drunk or eaten with farina. The best of all the palm drinks, at least to the white man's taste, is the assaii (*Euterpe oleracis*), but the most common is the bacaba (*Enocarpus distichus*). The awara (*Astrocaryuna tucuneoides*), aeta (*Mauritia flexuosa*) and the cokerite (*Maximiliana regia*) are also used. Wild pineapples, cashews and bananas are crushed and mixed with water to drink.

Eating and Drinking

The Indians eat less than a white man at their regular meals, but they eat more between meals and upon special occasions when food is plentiful. When at work on the trail they eat three times a day: a small amount at daybreak, a good meal about eleven o'clock and another good meal at dark. Men and women do not eat together, even at home alone. Men and boys eat first and then the women and girls remove the pots and eat what remains. At home, the wife brings bread and the cooking pot, containing meat and soup, and places them in front of her husband, who is seated on a stool. He soaks some bread in the soup, turns away from the pot and eats the moistened bread, then turns back for more. The boys eat with the father. If there are no children the wife may eat at the same time her husband does and out of the same pot, but she must eat standing. When she eats alone or in company with other women she sits on her heels or on a stool.

When several strangers appear at a village, all the women bring out food, the chief invites the visitors to eat and he eats with them. All squat around the food, those near soak their bread and then move back without rising to make room for others and the process is repeated until all are satisfied. The meat at the bottom of the pot is eaten with the fingers after the soup has been consumed. Women in the party are taken inside to eat with the women and girls of the village. Choice food is often selected for visitors, particularly fruit and nuts. Fruit is eaten at the end of the meal. When strangers arrive the women bring the yaposa drink at once and immediately prepare some food. No word of greeting is offered with the drink and no word of thanks returned with the empty bowl. Any empty receptacle must be returned by the individual to whom it was first presented.

Hunting

The Macusis are primarily agriculturists. Each man makes his own field and depends upon that for his main support, but the chase supplements and gives variety to the diet. Men enjoy hunting and fishing and observe certain rites to secure the assistance of the spirits in their success. There is a particular charm or bina for each animal, which makes its capture certain. A root, leaf or other object may suggest some part of an animal and be used in its capture, or the actual part itself, as the heart, head or bone may be carried as an amulet.

A special charm is needed for the hunter of the savannah deer because it is difficult to approach in the open. It takes fright at the scent or movement of the hunter, hence he must hunt up the wind and remain motionless when the deer lifts its head. Only those who have the special charm are able to call the deer or to walk up and shoot it with the bow and arrow. The would be hunter selects the leaves of a certain caladium and macerates them in water. The leaf has a fancied resemblance to the ear of the deer. Then he makes four thongs from the fibre of the aeta palm, two small thin ones and two as large as a lead pencil and three feet long. One end of the thong is tapered to a fine thread. When all are ready the thongs are soaked in the solution, and the hunter, taking the fine thread, passes it back through the nasal passage and pulls it out through his mouth—the small thongs first and then the large ones through each nostril. These thongs are then tied to a stick and hung up in the house as evidence that the man has performed the ceremonies which make him a deer hunter.

The forest tribes depend much more upon the chase than the savannah tribes do. They pay more attention also to breeding and taking care of hunting dogs. When not hunting the dogs are kept tied on platforms and never allowed to run about the house on account of the danger from jiggers (*Pulex penetrans*), the small insects which burrow under the skin near the toe nails and make the dogs' toes sore. These jiggers infest the dust about the village and cause a great deal of suffering among men and animals. We were constantly removing jiggers from our own bare toes. The women have most care of the dogs. They take them from their platforms and carry them under their arms to the creek each day for a bath. Morning and evening they carry them away from the house and turn them loose for a run, but gather them under their arms again to carry them back to their platforms. By this method the dogs' feet are kept out of the dust of the village, and free from the jiggers. The short rope with which the dog is tied has a stick in the middle part to prevent the dog from chewing the rope. Dogs have binas as well as men but they do not select them for themselves. If a dog is lazy or unable to scent the trail, ants are allowed to sting him. The hunter, unless he is going far from home, does not take his dogs with him. He carries a bamboo horn, which can be heard a long distance, and sounds certain signals when he encounters game. Dogs are most useful in hunting the peccary and the tapir.

When the hunter finds peccaries he sounds his horn, two blasts about ten seconds apart; then, following in the direction the game is going, he continues to blow two blasts each at frequent intervals so the men at the village may know which way to run with the dogs. All the men and all the dogs rush through the forest at great speed. The dogs are not released until the men have killed all the peccaries possible with their spears and bows and arrows. By this time the herd of half a dozen or half a hundred has been scattered in all directions. The dogs chase individual ones into hollow logs, tree trunks or holes in the ground. Sometimes one or more may take refuge between the great flat roots of a tree and turn to defend themselves. The dogs are afraid to make an attack, but hold them at bay until the men arrive and dispatch them with a spear. When the peccary (*Dicotyles torquatus*) takes to a hole in the ground, which he happens to find in his flight, the men fasten the opening with sticks or logs to prevent his escape and then make a very ingenious trap. About a dozen small poles are cut six or eight feet long and tied or woven together in the shape of a long funnel which tapers from a size sufficiently large to admit the peccary to six inches at the other end. The large end is placed at the hole while the other is lifted up and tied to the crossed poles. The fastenings are then removed and the peccary makes a rush for freedom but his legs go through between the poles and he finds himself helpless. He attempts to get back, but one man blocks the way while another hits him on the head with the end of a pole and kills him. This is a very effective trap which never fails because the peccary always comes out at once. This trap is used by all the Carib and Arawak tribes in the region (Plate XI, B).

When the hunter arouses a tapir (*Tapirus terrestris*) from his lair, he sounds his horn giving three blasts at intervals of ten seconds and repeats them within a few minutes to tell the listeners the direction the tapir is traveling. The tapir feeds late in the evening and at night and lies down during the day wherever he happens to be when light overtakes him. When aroused in the daytime he makes a wild rush through the thick forest in the direction of the river. He has a regular run where he crosses a low divide or where he is accustomed to go to drink and bathe. These crossings are known to the hunter and when his horn sounds the direction the tapir is going the men at the village run with the dogs for one of these crossings. The dogs chase the tapir to a water hole where they surround him until the hunter kills him with a spear or bow and arrow. The tapir has no defense; he therefore runs for a safe place. He is an excellent swimmer and diver, so he attempts to reach deep water, where he is safe from his enemies. Deer are hunted with dogs in the same way and they, like the tapir, take to the water.

Traps and snares are used to catch some of the smaller animals and birds. A beehive trap is made to catch birds. Seeds are scattered under the trap, and when the boy on watch sees a bird enter he pulls a string, which releases the support and allows the trap to fall. Animals have runways which they habitually travel. A loop is so placed in the runway that the head of the animal passes through the loop. The loop cord is attached to a stout pole which is bent over and held by a trigger. The weight of the moving animal springs the trap and releases the pole, which lifts him from the ground. A net is sometimes stretched across the runway of deer and the grass set on fire. The frightened deer run into the net and are killed by men in hiding. Iguanas or lizards (*Iguana tuberculata*) sun themselves by climbing on the bushes or on rocks along the rivers. The Indian from his canoe shoots them with a special kind of bone-tipped arrow having a lateral projecting barb. When the iguana falls into the water the arrow reveals his location. Deer, peccaries, monkeys and birds even in the forests are sometimes driven to a hill top where they are killed by men in hiding.

The Indians are not particularly good shots with their bows and arrows at long range, but they are such experts at stalking the game or at imitating the calls of all creatures that they succeed in getting near enough to kill at short range. The deer, peccary and tapir must be hunted, because they do not always respond to the call. On one occasion, we saw a young tapir crossing the river and our boys called it back and killed it, but old tapirs will not answer the whistle. The native knows all the characteristics as well as the calls. Some animals will follow a call, while others will answer but will not follow. Some answer a call only when they themselves are calling; others will follow up a response when they are calling; while others will follow a call without responding. Some respond and follow only when the flock is scattered. Some respond and come alone, while others respond and bring the flock with them.

The monkey is always willing to answer and to follow up a call, but he is cautious at times and leaves his companions behind. He is very tenacious of life and difficult to dislodge from the branches of a tree. When transfixed with an arrow, he may hold on until the Indian climbs up and kills him. We sat down to wait for one to fall that had been mortally wounded, but while we watched an eagle happened along and carried it off. At another time I shot a curassow, which fell behind a large log, and a jaguar gathered it up and ran away. The trumpet birds (*Psophia crepitans*) feed on the ground, for most part, in small flocks. They answer the call, but they take fright easily; hence it is necessary to build a blind of leafy branches before beginning to call. When the birds are within twenty feet, the man shoots one; the flight of the arrow makes no noise; the cry of the wounded bird brings the flock together where a number may be killed. The male curassow (*Crax alector*) crows just at the break of day before leaving the roost and again about the middle of the forenoon, or rather these are his principal crowing times on dry days. The hunter gives the answering call of the female and waits for the male, who comes at once bringing his flock with him. Several may be killed with the bow and arrow before they take flight. With a gun a man may shoot three or four times before they run or fly out of range. For the white man, the best game of the forest is the maam (*Tinamus*); the white meat of the breast is most delicious. When, at dusk, the hunter hears its call, he goes after it repeating its call at regular intervals until he comes up to it. The maroudi (*Penelope pipile*) is also greatly prized for food and as a pet. The green parrots are very good eating, but they feed in the tops of tall trees and they have excellent eyesight; besides, they post a sentry when feeding, hence they are very difficult to shoot. Other birds are often found feeding with these parrots, and I have wondered if it were not for their protection. The parrots are very noisy except when feeding, but they are wasteful feeders and the ground under the tree is always littered with the fallen fragments, thus revealing their presence. The hunter hides under the tree before the parrots come, and with his poisoned darts ready he awaits their arrival. They come first into the top of the tree, and when the sentry is satisfied that all is well, they move down to the lower branches, where the hunter picks them off one by one until he is satisfied. The arrow, the size of an old fashioned knitting needle, makes no noise if it misses, and if it hits its mark the bird soon drops off without making any outcry. If it were possible for the hunter to use the bow and arrow the twang of the bowstring would be sufficient to frighten the birds away. The macaws (*Ara macac, Ara militaris* and *Ara ararauna*) are greatly prized for their long feathers of beautiful red, green, yellow and blue colors. These birds frequent the tops of the tallest trees. There the hunter builds a blind and awaits their coming. He sometimes uses a pet macaw as a decoy.

FISHING

The Macusis catch fish with a variety of traps, a net or a hook and kill them with the bow and arrow or vegetable poisons. The method depends upon the kind of fish, the season and the water. The bait depends upon the appetite of the particular fish desired; if you want pacu you use fruit; if another you use leaves, insects, worms, flesh of animal, bird, or fish. The pacu (*Myletus paca*) feeds largely upon the fruit of the yellow plum (*Spondias Myrobalanus*) during its season, which happens to coincide with the high water. The fish cannot be seen in the yellow water, so the Indian climbs to an overhanging branch of a tree and drops fruit into the water. When the fish rises to the bait it is shot with an arrow attached to a string for retrieving it. The pacu in the dry season is found only in the rapids, where he is shot with the same arrow attached to a string. During the rains he is found all along the river. The dip net is used along the banks of the river when the water is high and at a poisoning to gather up the dead fish. The net is ten or twelve inches in diameter and from one to two feet in length. It may be used also for landing hooked fish, but the more common method in landing a big fish is to shoot an arrow into it. The most savage fish known to South American waters, is the pirai (*Serasalmus piraya*), a short, deep bodied fish, from a foot to eighteen inches in length, having very sharp saw edged teeth.

It cannot be taken with the hook, so a very ingenious trap is used to catch it.[1] This trap is used by all Arawak and Carib tribes in the forest region. The trap consists of a funnel shaped basket attached to a spring pole. A number of split sticks, thirty inches long, are woven together with split bush rope making a basket ten inches wide at one end and tapering to a point at the other. The mouth of the basket is fastened to the spring pole with two cords about three feet long. The pole is bent down and the basket is placed below a projecting pole or prepared framework to keep it under water, where it is held in a horizontal position by a third cord attached to the spring pole and the trigger stick. The bait attached to the trigger hangs down in the middle of the trap. When the fish coming up stream strikes the bait, the trigger releases the pole and the trap is pulled forward and upward out of the water. The electric eel (*Gymnotus electricus*) and the stingray (*Trigon hystrix*) are also eaten. The aimara (*Erythinus macrodon*) and the arapaima (*Sudis gigas*) are both good large fish; the arapaima weighs fifty pounds or more. The aimara has very sharp teeth and a savage disposition. The Indians are afraid to fish from a canoe because the aimara when hooked offers no resistance—cannot be felt on the hook when pulling the line in—but when near the surface he jumps for the fisherman's hands. They fish from a rock or the river bank and keep a club at hand with which to kill the fish when he comes out of the water.

The simplest trap found everywhere is made by building a dam across the river, where the fish, coming into it, cannot get out. A dam is sometimes built at a small waterfall in such a way that the channel is restricted to a narrow opening into which a funnel shaped trap is placed. The fish are thus forced into the trap. If the trap is made double,[2] with the inside funnel so woven that the fish may pass through but cannot return, it may be set anywhere in rapid water. The end may be untied to remove the fish. The trap[1] is a simple affair, made of sticks two and a half feet long, in the form of a truncated cone. It is carried into the pool and planted down on the bottom. The fish are removed at once from the top by hand. Traps are in use partially because the pirai with his sharp teeth cuts the line and makes it difficult to fish with the hook.

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[1] Farabee, W. C. The Central Arawaks, Anthropological Publications, Vol. IX, Fig. 6.

[2] *Ibid.*, Fig. 4.

During the dry season the fish remain in the great pools along the river and refuse to take the hook. The Macusis, like the Wapisianas, have learned to catch the fish by poisoning the water of the pools. The poison liana is collected in the forest, sometimes at a distance of two or three days' journey and carried to the pool, where it is pounded on the rocks to reduce it to pulp. The amount needed depends upon the kind of poison, the size of the pool and the amount of water. One hundred pounds of the best poison pulp would be sufficient to poison a pool six feet deep, fifty feet wide and one hundred feet long. Everything is made ready the day before the poisoning is to take place. If the pool is a long way from the village everybody goes along and camps there. Barbecues are built and firewood gathered to roast the fish before they are carried to the village. Baskets are made to use in collecting the fish.

The day of the poisoning, the men go to the pool under the direction of a head man, who has full charge and gives directions to the men who carry the poison and to the whole group when the dead fish are being collected. The baskets of poison pulp are soused up and down in the water and then held up to allow the poison to drain out. Then they are taken back to the rock where the pulp is pounded for a time and taken back to the water. The fish soon feel the effect of the poison and rush about in a vain endeavor to escape the discomfort, but it requires an hour or more to kill all the fish. The pirai, or any other vicious fish, is speared at once and thrown out by the men with the poison. When the man in charge is satisfied that the fish are all dead he gives the signal and everybody rushes in and gathers up all the fish he can find. A large pool will yield five or six hundred pounds of fish. The whole performance has taken about two hours. The rest of the day is consumed in cleaning and barbecuing the fish and at night a great feast is held. The following day the remaining fish are packed up and carried to the village, where they are kept smoked until they are used. Many pools are thus robbed of every fish they contain every dry season. One observing this complete destruction wonders why the fish are not exterminated in the whole river. The secret is that the pools in the lower reaches of the rivers are so large that they cannot be poisoned and thus the fish are preserved and the rivers restocked when the rains return.

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[1] *Ibid.*, Fig. 5.

The interior tribes living along the head streams practice different methods. The fish are smaller and more difficult to shoot or to secure in traps. The pirai cuts the line so these people never fish with the hook. They use a trap to catch the pirai, but make no other traps. The streams continue to flow throughout the dry season, and the fish are on the move. However, the natives poison the streams and have just as much fun catching the small fish as their kinsmen on the larger rivers have in catching large ones. On January 1, 1914, we attended our first fish poisoning with the Waiwais. Two days before, the bush rope, aiya, was cut and carried to the village, where mallets were made for reducing it to pulp. All the next day was spent by five or six men in pounding the rope into fine shreds and collecting it into baskets—in all about ten bushels weighing between three and four hundred pounds. Plate XI, A shows the method used and the size of the bush rope. At daybreak, New Year's morning, everybody started for the river three hours' journey away. The first thing, after the loads of pulp were deposited on the river bank, was to make baskets of leaves to hold the small fish. The larger fish were strung on a cord or bush rope over the shoulder. The place selected for the poisoning was the deepest pool on the river. Some of the men took the poison into the rapids just above the pool and continued to pound it and to roll it about in the water (Plate X, A). Other younger men arranged themselves down stream to spear the vicious fish and those first affected by the poison. At the end of fifteen minutes the fish were coming to the surface half stupefied; if touched, they would dart away for an instant and then float, but after half an hour all the fish were quite dead. When the chief gave the signal, all made a wild rush to see who could get the most fish. After fifteen minutes of the most exciting scramble of my experience, I found my camera on the tripod commanding the view, but no one had exposed a plate—we were too busy fishing. Large fish were killed two hundred yards down stream, and small ones, six inches long or less, for a half mile down; but below this they were unaffected. Some poisons appear to stupefy the fish only, but this one kills them outright. Two or three hours after the poisoning we found dead fish floating on the surface a mile and a half below the poisoned pool.

Very few poisons are used by the forest tribes; possibly because the variety used above, aiya (*Mullera maniliformis*), is so plentiful and so effective that others are not needed. This variety is the kind most desired by the Macusis for poisoning pools, but it grows a long distance away. The Wapisianas call it aical and class it as their best poison. It is a bush rope or liana which grows to the thickness of six or eight inches. The stem and roots are used. It is more valuable also because it may be stored for several days without losing its strength. It is often an article of trade from tribe to tribe. Kowui (*Lonchocarpus densiflorus*), a bush rope, is used at times. The roots and the outer bark only contain the poison. A dark flat bush rope, called pici, is sometimes used although not so good as either of the above. Four shrubs are known: Kunani (*Tephrosia toxicaria*), leaves and seeds used; kunapari (*Clibadium asperum*), leaves and seeds used; tcukuya and haya are shrubs whose leaves only are used. The curale (*Strychnos toxifera*) poison is not used in shooting fish or in poisoning the pools, but is reserved for the blow gun darts and arrow points.

Hunting Implements

Indian implements of the chase are always well made and well adapted for their uses. Each man, when it is possible to get the materials, makes his own implements. It is sometimes necessary for him to get certain things by barter, not because he could not manufacture them, but because the best materials are not available. An Indian is a successful hunter, not because he is a wonderful marksman, but because he knows so perfectly the habits and instincts of the game he pursues. He knows their haunts and lies in wait, stalks into their presence or calls them within easy range. He has a particular arrow or spear for each species.

The best bows are made of purple heart (*Capaifera pubifloris*) or the stiff central part of the letterwood (*Piratinera Guianensis*). A tree two feet in diameter will yield a stick six inches in diameter, from which bows can be made. The bows were formerly worked down into the desired shape and size with knives made from peccaries' teeth (Plate XXXV, C). The forest tribes continue to use these knives in making their bows. The bow is finished with the rough leaf of the savannah tree (*Curatella Americana*) and polished by hand with the oil prepared from the nuts of the crabwood tree (*Carapa Guianensis*). The bow, seven feet long, an inch across the back and an inch deep, is very stiff and must not be flexed too far. When the bow is relaxed it is perfectly straight. The middle of the bow is wrapped with fine cotton thread for about six inches and is decorated with tufts of feathers. The surplus string is wound around the lower end of the bow. To tighten the string for immediate use, it is slipped from one end, given a few twists and replaced, the bow being flexed by pressure against the knee. The Waiwais make the best bows of all the tribes. Arawak as well as Carib tribes secure Waiwai bows by barter.

All tribes make the same general type of arrow. They have no flint, hence their arrows are tipped with bone or wood. The arrow shaft is made from the flower stock of the wild cane (*Gynoecium saccharinum*), which grows plentifully along some of the rivers. The foreshaft of hard wood is inserted into the reed shaft which is compressed for an inch or two by using a cord with a stick tied at each end. One end is held by the hand and the other between the toes. The cord is wrapped once around the shaft and pulled tight while the shaft is rolled up and down the string and pressed firmly around the foreshaft. Then a waxed thread is wound about the shaft to hold it in place. If no point is to be attached the end of the foreshaft is pointed and barbed. A bone point may be so attached that the upper end projects and serves for a barb. A flat or a curved bamboo point may be attached to the shaft or to the foreshaft. The foreshaft may be made with a socket for a poisoned wooden point eight or ten inches long. And again there may be a socket for the harpoon head. The foreshaft may end in a large blunt point or it may have four very short sticks tied about it to prevent penetration. The feathering is done with considerable care. Cotton threads of different colors are woven into designs which distinguish the workmanship of the makers. Some of the harpoon arrows are not feathered. The thread for wrapping the shaft is waxed with the pitch of the *Ceroxylon andicola* mixed with beeswax and powdered charcoal. Care must be taken lest too much beeswax should destroy the adhesive quality of the wax. It is stored in bamboo joints and used for covering arrow cases and blow guns, repairing implements and canoes.

Spears are used for killing animals at close quarters—jaguars, tapirs and peccaries when the dogs are holding them at bay. The spears are made from purpleheart or other hard woods. They are about eight feet in length and have a long, tapering square head. Most arrows may be used for different purposes but many are made for one primary purpose. The arrow with a long barbed foreshaft may be used to kill birds, monkeys or fish. The large arrows with long bamboo points are used for deer, tapir, jaguar and man in warfare. The harpoon with toggle head is used only for large fish. The blunt points and those with slight penetration are used for land birds only.

The Indians of this region know the use of many poisons in killing fish, but for killing animals on land only one poison was in common use—and that was curari, urari, ourali or wourari according to the person pronouncing the word. It is known to many tribes, who get it by barter from others who make it. The ingredients differ from tribe to tribe but all the formulæ contain the bark of a creeper (*Strychnos toxifera*) which is the most active principle. This plant grows abundantly in the Kanuku Mountains, where the Macusis have a monoply of its use. They manufacture the poison and exchange it with surrounding tribes to their own great advantage. The Wapisianas and Arecunas depend upon them for their whole supply. Even with this demand comparatively little is made because it is so deadly that small amounts only are needed. Both Waterton and Schomburgk witnessed its manufacture and both performed many experiments to determine the exact effect of the poison. It apparently paralyzes the nerves of the voluntary muscles. With a blow gun dart, Waterton killed a chicken in five minutes and an ox in twenty five minutes with three peccary arrows. The properties of this curious poison are not fully understood by the outside world. The formula which Richard Schomburgk saw used may be of interest:[1]

Bark and albumen of Urari plant (*Strychnos toxifera*)	2 lbs.
Bark and albumen of Yakki (*Strychnos Schomburgkii*)	¼ lb.
Bark and albumen of Arimaru (*Sirychnos cogens*)	¼ lb.
Bark of Tarireng	¼ lb.
Bark of Wokarimo	¼ lb.
Root of Tarireng	½ oz.
Tararemu	½ oz.
Caramu (*Cissus Sp.?*)	?
Manacu wood	?

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[1] Reisen in British Guiana, p. 450.

Only a few men know how to manufacture the poison, and these go about it with great ceremony and secrecy. I did not witness the ceremony but learned from others about it. A new leaf shelter is first built. A new pot must be made for the purpose of boiling the ingredients. The water must be brought from a clear stream some distance away, and the vessel must be set down at frequent intervals because a bird shot with a poisoned arrow will fly only as far as the water was carried at one time. The maker must keep his own fire and while tending it must blow into the boiling pot at certain intervals. When the ingredients are all boiled for the proper length of time, they are strained through a new press. The juice is then boiled for twenty four hours or until it is the consistency of vaseline and dark brown in color. It is then stored away in small gourds for three or four days, when it is ready for use. If the poison is allowed to dry on the dart it becomes useless, hence it is that the darts and the arrow points are carried with their ends in the poison, and are not taken out until needed for immediate use. When the poison becomes dry in its container it can be freshened by mixing with it some fresh cassava juice. Little danger need be feared from handling poisoned arrows in museums. Even if the poison were active the small amount one would receive from the prick of a dart would do him little harm. The whole amount on a fresh blow gun dart, which is sufficient to kill a chicken in five minutes, would not be a grave danger for a man. To kill a peccary, the arrow point must break off and remain in the wound thereby preventing bleeding and insuring the absorption of all the poison. An accidental prick from such a point would not be very dangerous to man. I mention these things because one hears so much of the great danger from such sources. The reason we hear these startling things is because we have not advanced beyond the primitive man's ideas of the mystery surrounding poisons. We easily believe extravagant stories concerning deadly insects, deadly snakes and deadly poisons.

Detachable poisoned points, eight inches long, are used primarily for killing peccaries. The point is made to fit loosely in the socket of the arrow shaft so that it will remain in the wound and allow the shaft to drop to the ground. If the point were firmly attached, the arrow would be caught in the brush and pulled out, leaving an open bleeding wound which would allow all the poison to escape. The arrow point is notched in several places so it may break off in the deep wound. These points are carried in a small bamboo joint which contains the curari poison in the bottom and is covered with a close-fitting cap of tapir skin. This is so near air tight that the poison will remain moist and active for a long time. The points must remain in the poison until needed for use.

The most mysterious and awe inspiring weapon in the world is the blow gun. It is found among most of the forest tribes in eastern South America, in the Antilles and among the Cherokee, Iroquois and Muskogean tribes of North America. Its occurrence in Asia has led some extremist to conclude that this is another evidence of contact, but the instrument is such a simple one that we may safely assume an independent invention. A hollow reed is in itself an invitation to blow through it. A pellet of any kind might well be the first missile. It is one of the simplest of useful inventions. The blow gun is by no means the most useful of Indian weapons. Its use is restricted to birds and small climbing mammals. The darts do not carry sufficient poison to be effective in killing big game. However, it justifies itself for the suggested uses. Birds of every kind feed in quiet and fly away at the slightest suggestive noise. In a tree top they are small targets; a miss with an ordinary arrow would frighten the whole flock, but the dart is noiseless, and, besides, the shock from it is so slight that the bird struck utters no cry before dropping from sight to the ground. The monkey is most difficult to get down—he has so many hands to cling with. When wounded with an arrow he finds a secure place in the fork of a tree from which he cannot be dislodged; but when hit with a dart he remains quiet until he drops from the limb to the earth. The gun is used also to get birds for pets. A small amount of poison is used, and, when the bird drops, the dart is removed and salt rubbed into the wound. It is generally stated that salt is the only antidote known for curari.

The Macusis secure the reeds for their blow guns from the Arecunas who get them near the head waters of the Orinoco, where they grow in abundance. The inside section of the gun is made of the first joint of a small bamboolike reed (*Arundinaria Schomburgkii*), a half inch in diameter, which grows perfectly straight between nodes, ten feet or more apart. This tube, after it has been carefully cured to prevent warping, is placed inside the stem of a palm (*Ireartia setigera*) to prevent warping and to add strength and endurance. Sometimes the guns are secured in this form, and they may be so used; but the better and more common method is to cover the gun with pitch and wind it with bark or split lianas. While the reeds are uniform in thickness the gun is wound heavier at the butt and tapering to the point, thus making it better balanced when in use. The Wapisiana guns have a mouthpiece of palm nut or spool shaped hard wood, but the Macusi guns are plain, with an enlarged funnel shaped opening made by cutting away the end of the reeds. All blow guns have the so called sights which are mere indications to show which side of the gun to hold uppermost. The long tube, when held out from one end in a horizontal position, always has a weaker side which allows it to bend. If this weaker side is held uppermost the gun will be straight. The "sights," usually made of one or two agouti teeth (*Dasyprocta agouti*) set in wax, are always fixed on the weaker side of the barrel, a foot or two from the butt. The gun is useless if allowed to warp, hence it is never stood up on end or laid across beams, but is suspended from the ridge pole by the small end.

The blow gun darts, ten inches long and the size of knitting needles, are made from the midrib of the cokerite palm (*Maxi-*

miliana regia) and carried in a wicker woven quiver, which is coated with karamana wax and covered with a tapir skin cap. Attached to the quiver, there is a jawbone of the pirai (*Serrasalmus piraya*) and a small basket for carrying silk cotton (*Eriodendron*). The quiver contains curari poison at the bottom, into which the ends of the darts are placed. When a man is ready to use his gun, he takes out a dart, rolls it between the teeth of the pirai to cut it half in two so the end will break off in the wound, takes a small tuft of cotton from the basket and rolls it around the dry end of the dart to fill the bore of the gun. The arrow is then inserted in the butt of the gun and with a sudden explosive puff is shot noiselessly to the distance of a hundred feet with considerable accuracy. One great advantage of the poisoned dart is that it need not hit a vital part.

The blow gun is never used in warfare—the story teller and the Sunday newspaper traveler notwithstanding. Neither is the poisoned peccary arrow used in warfare. The one arrow made and used for that purpose is the large bamboo pointed arrow. It is more deadly than any other because it contains some poison and it makes a large, ragged, crescent shaped wound which bleeds profusely. All the traditions point to the arrow as the primary war implement used among both Arawak and Carib tribes.

There are three stories which belong to the South American tropical travelers and story tellers. The traveler is in constant danger of losing his life; (1) by being attacked by Indians with blow guns; (2) by eating birds, monkeys and peccaries shot with poisoned arrows; and (3) by drinking the water of a river below a fish poisoning. No traveler ever was in any danger from any of these causes. If an Indian wished to kill an objectionable traveler he would use more direct methods and more effective implements. The small amount of poison one would get from eating a bird or animal killed with a dart or arrow point could be eaten with impunity. One would not be foolish enough to drink the water in the pool at a poisoning, but he might drink from the river immediately below without danger an hour later. The poison goes to the bottom of the river because its specific gravity is greater than that of water. A surface poison would kill no fish.

Division of Labor

The duties of all individuals in a Macusi village are fairly well established by custom and on the whole equally divided between the sexes and along perfectly natural lines. The male members of society, men and the boys old enough to leave their mothers' care, do the hunting and fishing and all the heavier work in clearing their fields. The men select the location, clear the land and build the house. In making a field the men first cut the underbrush, then fell the large trees, but the women assist in the burning. The men go to some neighboring or even remote village to obtain cassava cuttings for the new fields. They dig up the hills, but the women carry the cuttings from the canoe and plant them. All work together in planting corn, potatoes, squashes and sugar cane, but the women take care of what little is done in the way of cultivation and in gathering these vegetables for cooking before the final harvest, when the men assist. Their fields usually are a long way from the village, making the gathering of daily food very laborious for the women.

Men use the dogs in hunting, but the women care for them at other times. Men gather the fish poisons, prepare them and poison the water, but the women dress and barbecue the fish and carry them home in their pack baskets. Men make their bows and arrows, blow guns, snares and traps. Men are the traders and often make long journeys on foot or by canoe, but women often accompany their husbands to pack on foot or to steer the canoe if traveling by water. Women gather the food from the fields and forests, cook it and serve it to their husbands and sons. They carry water from the river and make the drink. They gather the cotton, spin it and weave it into cloth and hammocks. Women among all tribes appear to the white visitor as burden bearers and hard laborers because they are so busy cooking while the men are visiting. If the visitor, however, should accompany a hunting party to a distant mountain, enter into the chase, kill his 125 lb. peccary late in the afternoon and carry it back to the village, he would agree that hunting for one's food is very much like work. The Indians are very well satisfied with the present arrangements and desire only to have them continue.

SOCIAL CULTURE

Clothing and Ornamentation

The Macusis have been for so long a time in contact with whites that they have learned to use the white man's clothing to some extent. The men wear trousers and the women skirts when they go away from home, and they may even add shirts and waists, but at home they all prefer their own native dress. The interior tribes have nothing of outside manufacture. Children everywhere go about with only a necklace until they are six or eight years of age. The girls are first to dress; they put on a fringe of cotton strings, and as they grow older they make for themselves beaded aprons. In earlier times the women all wore the fringe of strings. When they got beads it was a very simple matter to string them and to weave them using the fringe strings as warp. The hint may have come from an outside source or from the custom of wearing colored seeds and nuts. Many of their bead aprons have fringes of nuts and seeds. The size of the apron varies with the age of the wearer until in adult age it is about twelve by fifteen inches. The different colored beads are woven into most beautiful geometric designs, all of which may be traced directly to natural forms. In many cases a stranger can recognize the animal form at a glance (Plate XXV). In many cases the body of the apron is in plain color, while the borders are ornamented with fragments of realistic designs. Sometimes the aprons have fringes of nuts or seeds which serve as ornaments and also as rattles, making tinkling sounds at every step as the thighs strike the apron in walking or in dancing. As there is considerable traffic in aprons it is difficult to determine the preferences of individuals or tribes. The choice of colors depends more upon the available supply than the tastes of individuals. The Waiwai women prefer white beads for the body of the apron and blue ones for the narrow borders at top and bottom. The Macusis prefer the apron entirely plain or covered with a single repeated design. The Diaus and the Waiwais often wear longer aprons with fringes of nuts. The women of the forest tribes often wear at their dances a beaded back ornament, ten inches high and a foot in length, made with sticks attached along the ends to hold it in position. It is ornamented with feathers and attached to the apron string. Plate XII, F shows a Waiwai woman wearing the back ornament and the long apron. The apron string is worn so tight that it becomes deeply imbedded in the flesh.

The men wear a loin cloth made of cotton woven in a strip five or six feet in length and six or eight inches wide with loose threads or long tassels left at the ends. The cloth is passed between the legs and the ends suspended before and behind over a tight-fitting belt of jaguar skin. The tasseled ends are usually tucked up at the sides. Cloths for everyday wear are shorter and lack the tassels. Among some of the tribes a boy receives his first loin cloth at his puberty ceremony (Cf. Apalaii). The Indians are in the habit of coloring their bodies with a paint made of oil and the red pulp surrounding the seeds of the annatto tree (*Bixa orellana*). A mass of paint is rubbed between the palms and smeared over the body. A dye is made of the pulp of the same plant mixed with the gum of *Icica heptaphylla* for coloring loin cloths and hammocks. The Macusis, for ordinary wear, use red cloth obtained from the whites. The belts are made of strips of jaguar skin, plaited liana splits, or of the inner bark of the cakaralli tree (*Lecythis ollaria*). This bark is sometimes used for baby carriers, small hammocks and tump lines.

The Macusis, when traveling in the savannah on stony trails, wear sandals made of the leaf stock of the aeta palm (*Mauritia flexuosa*) or of the thick hide of the tapir. The sandal is roughly cut with square toe and heel and wide enough to protect the sides of the foot. The sandal is securely fastened by thongs, which pass through slits at the sides of the foot around the heel and between the great and second toes. The interior tribes do not use sandals because their forest trails are shaded and leaf covered. Neither are they found in the savannahs during the wet season when they would be useless on the slippery ground. They are of more value as a protection from the heat of the sun baked trail than from the stony soil, particularly so where there are frequent streams to be forded and the soles of the feet become cooled and softened by the water. At such times, without sandals to put on after the crossing, the feet are torn and blistered and the traveler is soon disabled. The leaf stock sandal is easily made, but quickly worn out. It is preferred to the tapir skin sandal in some respects; it does not slip on wet ground, and, being thicker, it protects the feet from feeling the pebbles. The use of the sandal is widely distributed in South America outside the Amazon Valley. Some doubt has been cast upon Ortiguera's statement that sandals were used by the Indians on the large island at the mouth of the Amazon in the sixteenth century, but the story was probably true because the eastern half of the island (Marajo), was an open savannah whose hot, stony trails would necessitate some protection for the feet. The western or up river part of the island is alluvial and forested.

Ornaments attached to, or worn on, the body are much alike in both sexes. Men and women wear seed and bead necklaces, and bandoleers; strands of beads wound around the upper arm and above the calf of the leg; shell ear ornaments with necklace and pendants and lower lip plugs with pendants attached. The women wear wristlets on both arms, and anklets woven in place. The men wear wristlets on the right arm but not on the left on account of its interference with the bowstring. They sometimes wear armbands of bark or palm leaf decorated with beads and feathers. Only occasionally do the men wear anklets, and then they are the removable type, either woven with drawstrings or strands of beads wrapped around the ankles. The bandoleer of monkeys' hair is given to the Apalaii boy at the conclusion of his puberty ordeal. The men have the septum of the nose perforated for wearing sticks with feathers attached at their dances. Ear ornaments of shell, bone or teeth are usually attached to a plug, which is joined from the back to a corresponding plug in the other ear by a plain string or beaded strings under the chin. There are attached to the plug also pendants of beaded strings with tufts of feathers at the ends. The lip plug has similar pendants. The photographs (Plates XXIX–XXXII), give a very good idea of the personal ornaments worn by both sexes on ceremonial occasions.

The hair is worn long by both men and women among all the tribes except the Macusi whose men are now beginning to cut their hair in the prevailing white man fashion. At puberty the men of the forest tribes cut their hair in front and put up the rest in beautifully decorated bamboo tubes from six to fifteen inches in length, which are allowed to hang down their backs. The hair is first oiled, combed and wrapped in a long queue; then the tube is slipped up over the hair and held in place by the hair string. The white down of the harpi eagle is sprinkled over the hair at festival times. The men are proud of their long hair and take exceedingly good care of it, dressing it every day with Brazil nut oil, which they carry at all times in their toilet cases. The women give less attention to their toilet. They wear their hair loose over their shoulders and frequently have it cut across in front to keep it out of their eyes. At puberty girls cut their hair in front and put on a head band of cotton, woven over four bent splints, with streamers hanging down the back. The combs in use (Plate XXIX) are made by setting the hard wood teeth in a slit in the leg bone of a bird. The comb is from four to six inches wide and the teeth are about two inches long. The hollow bone is filled with wax, the ends of the teeth imbedded in the wax, fine cotton or fibre thread is interwoven with the teeth for an inch, and then a clamp of two small sticks firmly attached to all the teeth and to the bone above. Thus the teeth are secured in place and strengthened. The bone back is carved at the ends and decorated with bright red and yellow feathers.

The body is not mutilated for ornamental purposes. The ears, nose and lip are pierced for wearing ornaments. Formerly both men and women pulled out their eyebrows and put on a line of black paint instead. Now they have scissors and razors and either cut or shave the eyebrows because they interfere with clear vision. The neighboring Wapisianas shave off their eyebrows for the sake of beauty. They sometimes leave a thin line a quarter of an inch wide. The Macusis pull out the scattering hairs on the face, but leave them on the upper lip. Some have fair mustaches, which, however, are never thick and heavy. The front teeth are often filed to a point with the idea of preserving them. The girls who are selected to chew the corn or cassava bread in making drinks have three radiating lines tattooed at the corners of their mouths. Fine lines are pricked in the skin with thorns and a mixture of calcined cassava bread and wild honey rubbed in. The sides of the tongue are scraped and rubbed with the same mixture. It is an honor to be selected as a chewer and the tattooing serves as a distinguishing mark, but it all appears to be most important in rendering the drink sweeter to the taste. There is no other tattooing, but the whole body is sometimes covered with intricate geometrical painted designs which, so far as we were able to learn, have no significance in themselves. The individual design may be that of a conventionalized animal or plant but in body decoration it is used for the sake of beauty only. Fragments of designs are used to fill up irregular spaces. Two girls were painted up for us and we took their photographs but unfortunately that one particular roll of films was spoiled and the designs lost. The plates show a number of the face paintings. The body is often covered with the reddish yellow paint made from the fruit of the annatto tree. The red lines on the face are made with annatto, the yellow lines with an extract of the leaves of *Bigona chicka* and the black ones with the juice of the *Genipa Americana*.

As it often happens in civilized society, well developed young men or women with good looks and fine physique, pride themselves upon their appearance and greatly appreciate the admiration of their fellows and members of the opposite sex. It was the daily habit of the two young men to take a bath in the river upon arising in the morning; cover their bodies with paint; oil, comb and decorate their hair; paint designs upon their faces (with daily differences) and put on their ornaments. The performance would consume an hour at least. In the evening before retiring they would take a bath and wash off all the paint. If they were going hunting they did not dress until after they had returned and had taken another bath. When on the trail our men would stop before entering a village, bathe and dress up generally. The young unmarried women of the village painted their faces and put on their beads every day when they were not at work. The attempt to present a pleasing appearance and to make a favorable impression was always in evidence at their dances. The married men and women at such times, while keeping themselves presentable, did not give so much attention to decoration. A mother would loan her ornaments to her daughter and go without herself. Practically all the beads in the village were loaded upon the three Parukutu girls in Plate XIII.

MUSIC

The Macusi are said to have the greatest love for music of all the tribes in the Guiana region. Their songs are borrowed by other tribes. A few years ago a mission was established at

Upikari and a small chapel built. One day when I was passing the chapel, I heard music inside and went in. The choir (Plate III), consisting of two boys and two girls, with a boy at the small organ, was practicing hymns for the next day's service. They were singing English hymns, having learned to read the words, but without knowing their meaning. Not one of them could answer my questions in English. We attended a service at Tirka and greatly enjoyed the singing which was taken part in by all present. For their dances, they have a man sing a solo part with improvised words, and all men and women join in the chorus. The leader of the chorus emphasizes the rhythm by the use of a rattle made by attaching a string of nuts with open ends (*Thevetia nereifolia*) to a staff. The flutes made of the leg bone of the jaguar are not used in making music for the dance, but these and the bamboo flutes are played by anyone for his own amusement. The flutes are often decorated with incised geometric designs. The bone flute is usually made of the femur of a full grown jaguar. The epiphysis is cut away, the fibrous parts removed and the end filled with karamana wax as a stop. An oval notch is cut in the edge on the popliteal surface for a lip. The bone is cut away between the neck and the trochanter to the hollow and three holes drilled about an inch and a quarter apart in the posterior side of the bone. The great trochanter and the head are perforated for the suspension of a number of cotton cords. At the other end cotton thread is wound around the bone securing other cotton cords, which hang as a decoration. The bamboo flutes are end blown, the open end being pressed against the lower lip to form the stop. Three or sometimes four holes are burned through with a firestick. The end may be left open or cut off at the node and a slit cut on each side above. These flutes are sometimes decorated with burnt lines radiating from the holes or with engraved designs. Another variety of flute has a reed made of a bird bone thrust through the node of the flute. The flutes of the Apalaii are all side blown and thus differ from those of other Carib tribes.

The Dance

The Macusis greatly enjoy the dance. They dance to celebrate any event—the visit of friends, a successful hunt, the successful ending of any undertaking; or, lacking an event or proper undertaking, they invite their neighbors for a friendly dance so they may become better acquainted, or they dance at all times when there is an abundance of food. After a fish poisoning, or upon the return of a hunting party that has gone far into the forest, when a man builds a house or makes a field, when young men want wives or when young women want husbands, a dance is arranged to call attention to the particular event or desire. All dances are more or less drinking bouts, and often the drink gives name to the dance.

The paricari dance is the most elaborate and the most important of their dances. This is a kind of double dance, the invited guests taking the part of the paricari and the hosts the part of the tukui. The name paricari is that of a small red headed bird (*Phoenicocircus carnifex*) and tukui is the name of a humming bird (*Topaza pella*). These birds are in no sense totems; but I was unable to learn why the names were used. The drink used at this dance is called paricari also. The tukui dance around in a small circle singing and dancing to the rhythm of the tuwi, or string of beads attached to a staff, while the paricari dance around a circle on the outside of the tukui, singing and dancing to their own independent music. The head man of the village leads the tukui and carries the rattle staff, and the visiting head man leads the paricari dancers. The leader is followed by two women, each having a hand on one of his shoulders. The other dancers follow in pairs, the man a little in advance and the woman with her left hand on his right shoulder all facing the centre. As they advance a step toward the centre and retreat the woman changes and places her right hand on her partner's left shoulder; then they move to their right four steps. Thus they continue around the circle from right to left. The rhythm is emphasized by throwing the weight of the body forward with each step. The tukui, in expression of their welcome, make a lot of noise with panpipes and drums.

The drink, paricari, is kept in a large trough or a canoe in the middle of the house. The dancers move around this receptacle for a time until the leader of the tukui suddenly ends his song with a yell in a high key and stops. The girl in charge of the drink takes a sip from a large calabash bowl and passes it to the leader of the paricari, the visiting head man, who takes a drink and passes it along the line to the others. Another bowl is given to the leader of the tukui who likewise drinks and passes drink to the other dancers. When all are refreshed the women select new partners and the dance starts off again. The method of selection is interesting. The woman, at the signal given by the leader with a shake of his rattle, places her hand on the shoulder of her desired partner, who immediately steps into place. After the first dance the visiting women select their partners from the tukui and dance with them. As the dance and the drinking go on, some are overcome and drop out while the others mix up in the general dance. The drink is slightly intoxicating, but would have little effect if it were not for the fact that the men drink such enormous quantities of it. The men have the happy faculty of bringing up the liquor soon after it has been drunk and the alcohol has been absorbed. The women never drink to excess.

When it has been decided to hold a paricari dance, the head man sends, to the villages he wishes to invite, messengers who carry knotted cords, or quipus, with knots corresponding to the number of intervening days. The time must be fixed several days in advance in order to allow time for the preparation of food and drink. As the dance usually continues for several days, or until all the drink has been consumed, it is necessary for the visitors to bring with them all the members of the family together with all the family pets. As the visitors arrive by villages the day before the dance is scheduled to begin, they blow their reed flutes to announce their presence. They advance into the village and the head man goes into the house, to the hammock of the head man of the village, and says "I am here." The man in the hammock responds "ugh," and the first speaker goes on to tell the interesting news from his people. He then takes a seat on a stool and a woman gives him a calabash of cassava soup, while the next man is being received in the same manner. When all have been received and refreshed they are shown where to sling their hammocks. The women go directly to the women's door and are received by the women without ceremony. During the reception the host has not moved from his hammock nor looked at his visitors but when the visiting head man has taken his hammock the host goes and sits by him and engages him in conversation. He talks without a break for fifteen minutes or so and then allows his visitor to talk in the same manner. As the talk goes on the listener grunts assent at regular intervals, and at the conclusion each grunts in turn three or four times in diminishing tones; at last all is quiet. The whole thing appears to be a formal ritual gone through with in unnatural tones and expressions. After a brief interval, they talk in a perfectly normal way, asking and answering questions.

There are three other dances. One, called warepang, takes place in the daytime, and only the one village takes part. It is a very informal affair, in which anyone may be the leader. The rattle, mara, a gourd with seeds inside and a stick through it, is used not to keep time for the dancers but as a signal to give directions. One shake means to advance, two to turn to the right, three to stop and four to turn around. The mawari is the dance with the evil spirit. The people dance with him and sing songs, saying that he is present, but he is unseen. The dancers may partake of any kind of drink; no special kind is required as in the paricari dance, but no drink is offered to or for the evil spirit. Even though there is no direct worship or offering, it would appear that this dance in recognition of the evil spirit is a direct attempt to avert his ill will. The third dance, called kaka, is much like the warepang except for the method of selecting the leader of the dance. A strong man is selected to defend the entrance to the house. The men taking part line up at a distance and make a run for the door when they are caught by the defender. A wrestle ensues; if the defender is successful in lifting both his antagonist's feet from the ground at once, he is the winner and receives the next comer. The one who succeeds in lifting the defender's feet from the ground, thrusts him aside and enters the house, where a woman throws soaked cassava bread in his face and thus marks him for the leader of the dance.

GAMES

There are no games for adults except the wrestling at the kaka dance. Small boys use their bows and arrows shooting at all kinds of small animals or insects, but I never saw them shoot at a stationary artificial target. They often stand in line and shoot at a round piece of soft wood or any round thing that a companion rolls along in front of them. No score is kept of hits or misses. The boys make and use an interesting kind of toy catapult. A forked stick, somewhat larger than the stick of the bean shooter of our own boyhood, has a string wrapped around the prongs sufficiently tight to draw them nearer together. A thread is wound around these strings, bringing them together. A dart the size of a knitting needle is made of hard wood and the sharpened end pushed through between the strings from the back and the other end carried over the front to the handle on the other side, thus tightening the strings and bringing the prongs nearer together. The catapult is now loaded and ready to shoot. When the butt of the dart is released, the flexed prongs straighten and the dart is hurled away to a distance of several feet. The idea is to shoot at some soft object at the proper distance, about six feet, to allow the dart to turn over and stick fast with the sharp point. It is a very ingenious toy and as far as I am aware unknown outside the Caribs.

POLITICAL ORGANIZATION

At present there is no chief over the whole Macusi tribe, and it may be doubted if there ever was one such. There are now three heads of authority: the head man who has political oversight of the village, the medicine man who watches over the health of the people, and the father whose will is respected by his family. The head man has no formal authority, but because of his good judgment, his success as a hunter and his influence in forming public opinion, he is treated with deference by all the men of his village. He gives advice on all kinds of questions affecting individuals, families or the village as a whole. He settles disputes, organizes hunting parties and fish poisonings. He may coöperate with head men from other villages and may unite with them against a common enemy in warfare. He secures his position by common consent and continues to hold it by public opinion. His task is an easy one because of the moral character of the Indians. From childhood they are taught respect for their superiors, regard for the rights of their fellows and the sacredness of traditions. They appear to have an innate dread of adverse criticism. The one duty, then, of the head man is to assist in forming a healthy public opinion. There are no definite punishments for particular crimes. The taking of food that does not belong to one is not regarded as stealing, yet he is asked to repay in kind. Women sometimes take things from each other, but when found out they are asked to make payment. The killing of a member of a family starts a family feud, which is handed down from father to son. The head man is not concerned in cases of this kind. It must be said that there is very little crime of any kind committed among them.

The father is absolute master of his household. The children are taught to obey without demonstration. The grown-up sons respect the wishes of their father until they are married and go away from the old home. The daughter brings to live in her father's house a husband who willingly submits to the will of his father in law. This does not mean that the father is domineering, but that his expressed wishes are respected. He counsels with his family and gives advice.

MEDICINE MEN

The medicine man, or piazong, is the religious head of the village and the controller of all kinds of spirits. Sickness and disabilities of every sort are due to the evil influence of a medicine man in some other village. These influences, or evil spirits, must be discovered and dispelled by the medicine man of the afflicted village. Pains are due to the presence of foreign objects in the body of the patient, but the object need not be a material object. A natural material object, as a thorn, may enter the body and cause pain; this is a daily occurrence. An unknown object may be in the form of a spirit and as such may be sent into the body from a distance by one piazong and expelled by another. The principal duty of the piazong is to discover and to drive away these foreign spirits. However, he does minister to the material needs of the patient by performing slight operations and by giving medicine. He does not attempt to defend the people against the attacks of evil spirits, but he is their only hope when they are attacked; hence his very great influence in the tribe. He is reverenced and at the same time feared because he himself has the power to send evil spirits into their bodies and leave them there to spoil and to destroy. His labors are very remunerative since no one would dare refuse him anything he asked for his services.

The office of piazong in former times was hereditary, but apparently it is not so today. A boy is selected by the piazong and put through a certain amount of practical training. He is taught the manufacture of the few medicines used. The herbs used may grow at a great distance in the savannah or forest; he must know the plants and their locality. He is taught the traditions of the tribe, for he must pass them on. He must learn the methods of his profession and the proper use of his voice in exorcising spirits. He must become a real ventriloquist who can imitate the calls of all the animals and birds as they approach and retreat when they are called.

The piazong's methods of procedure vary to some extent with the illness of the patient. I had no opportunity to witness a performance, but Mr. Christopher Davis, my informant, was treated for fever in his own house by the piazong of Tirka. The work must be done in absolute darkness and quiet so the patient may hear the spirit depart. Only two things are necessary in the preparation: first some leaf tobacco must be soaked for a time in water and then the juice squeezed out by hand into a calabash; then two large bunches of the leaves of a shrub called tcipuyeyare must be brought in and placed on the ground near the calabash of tobacco juice. The first sound Davis heard was that of the piazong gurgling the tobacco juice and spitting it out. Then began a series of discordant yells and calls and the flutter of the leaves high up toward the roof, and then they were brought down hard with a thump on the ground. The piazong stamped his foot and said the spirit of the bird had come. He questioned the bird but could get no information, so with a rush and flutter of the leaves it went away. The gurgling of tobacco juice and the yells and calls were repeated and other birds and animals came, were questioned and sent away. After some hours, the right spirit was found and persuaded to leave the man and allow him to get well. While shaking the leaves to represent the coming of the spirit the piazong sang a song asking the spirit to come and tell him the cause of the trouble. When it was all over the piazong told Davis that he would get well very soon.

The success of the piazong's treatment depends very largely upon his diagnosis. He had no specific for the fever, so the best he could do was to call in the spirits. At another time when a sick man came to him he made a drink, blew upon it, said a ritual over it and gave it to the patient to drink. If a child has worms he gives it a tea, called ronai, made of the bark of a tree by the same name. For a pain in the stomach or bowels, he scrapes the seeds of the kamara and makes a tea. For headache, he folds up the skin over the temple and perforates it with the spine of the stingray causing profuse bleeding. For cuts, bruises and sores he makes a salve by scraping the pulp of the kartama seeds. And to prevent the bite of the vicious pirai fish, he chews the seeds of the pua and rubs the salve on his legs. He is able to produce abortion, if for any reason children are undesired, by giving the patient a drug, the contents of which are guarded with great secrecy. He prevents conception by blowing upon a drink and repeating a certain formula. No doubt he was acquainted with other remedies but I did not remain long in his village and saw very little sickness. The piazong not only cures diseases and expels evil spirits sent by an enemy piazong, but he has power to send spirits and to cause sickness and death at a distance or among his own people. He may be employed by one party to inflict punishment upon another. He makes a drink, performs his incantations over it and gives it to the victim to drink, or he may only blow upon the drink. The victim swells up and dies or his flesh falls off. The piazong is so feared by his people that they are willing to give him anything he demands for his services. He therefore has the best of everything with very little labor, and is sometimes inclined to impose upon his patients. It will be noted that he is a wise man and his practice most intelligent. He does not depend upon magic alone to perform his cures, but uses herbs and practical methods when possible. He recognizes incurable diseases and attributes them to the kenaima over whom he acknowledges he has no control.

The Kenaima

The kenaimas are little people who live in the depths of the forest and come out at night to attack people—to kill them outright or to inflict some punishment upon them which will eventually cause their death. They may be hiding in lonely places waiting an opportunity to spring upon a passing victim. They are real men, not spirits, but they can do things that other men cannot do. No man ever saw one of these kenaimas; they are known only by what they accomplish. They never attack a man except when he is alone. Therefore a man never travels alone, hunts alone, nor even goes out of his house alone at night for any purpose. The reason the kenaima will not attack two people is because they must not be seen, not because they are afraid. Another peculiarity about the kenaima, a very significant one, is that he never draws blood nor leaves visible sign of his attack. The victim always dies in three days. There is no cure. The things the kenaima does to his victim are very interesting. He catches him, throws him down and pierces his tongue with a poisoned stick, which causes it to swell up so he cannot speak plainly. The victim goes home and dies in three days. Or, he throws his victim down, presses out the end of the intestine and pricks it or ties it up so there can be no evacuation, or, he may simply wrestle with the victim causing an irritation of the skin. In every case the victim dies in three days. No wonder the kenaimas are feared above all things. The piazong has no power over the kenaimas and may himself be attacked by them.

A man never dies a natural death, he is always killed either by the kenaimas or the evil spirits sent by the piazong of an enemy tribe. Most tribes have traditional enemies who are blamed for all the ills of the tribe, but sometimes they employ a method of divination to determine the guilty tribe. Schomburgk[1] records the case of a Macusi boy who had died and his family attempted to determine the guilty parties. The father cut off the thumbs and little fingers, the great and little toes and the heels of the corpse and placed them in a new pot filled with water. A fire was built under the pot and as the water began to boil the bubbles threw out one of the pieces in the direction of the guilty parties. I was unable to find any such method in use today. All punishments of such nature are in the hands of the afflicted family. The methods are then, to some extent, individual, and it might well be that this particular method was not in common use.

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[1] Reisen in British Guiana, Vol. I, p. 158.

PUBERTY CEREMONIES

The Macusis have no formal puberty ceremonies for either boys or girls, but the girls cut their hair short and wear a white band of cotton around the head for two months. They are not allowed to work nor to eat any meat or fish shot with an arrow. During the catamenial period girls and married women remain in seclusion, remove all beads and ornaments, eat no meat, nor fish shot with an arrow, and wives bake no bread for their husbands.

MARRIAGE

In their marriage relations the Macusi are exogamous and monogamous. A boy marries his cross cousin; either his father's sister's daughter or his mother's brother's daughter, and goes to live with his wife in her mother's house. He becomes for a time a servant of his father in law. A boy has the free choice within the limited eligible group of girl cousins. When he has made his selection, his father arranges with the girl's father for the marriage. The boy must show that he is able to provide for a family by bringing in a large amount of game for the marriage feast. The two families together prepare the food and drink and invite the other members of the village to assist in the celebration. The feast and dance are held in the girl's village and only the boy's immediate family are invited. There is no public ceremony of any kind but toward the end of the dance the boy and girl withdraw from the group of dancers and consummate the marriage alone.[1] They return and enter the girl's home where they take up their abode. They become a separate family but the boy devotes himself to the service of his father in law until a child is born, when they may move away to a home of their own. They may build a house in the same village or move some distance away and build alone.

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[1] According to Im Thurn, this formerly took place in public. (Among the Indians of Guiana, p. 222.)

This submission to the father in law would seem to be in the nature of a payment for his daughter. Marriage usually takes place at the end of the rainy season, which is also the planting season. In order to provide for his own home, the boy makes a clearing for himself before his marriage. The building of a house is a simple matter, but the clearing and planting of a field is a great labor, which must be accomplished at the proper season. As the boy must go to work for his father in law at once when he is married, he must have his own provision made beforehand. The work the boy is usually called upon to do, is the clearing of a new field. The whole arrangement is a most excellent one, as it gives the new couple a home for eight or ten months while their own fields are growing.

CHILDBIRTH

All the tribes understand the physiological facts about conception and the length of the period of gestation, therefore a pregnant woman is not regarded as unclean or in any way to be avoided. When the prospective mother feels the time for parturition has arrived, she retires alone to the bush or to a secluded spot where in a kneeling position she gives birth to the child. After delivery she calls to an assistant who brings warm water to bathe the child. The umbilical cord is tied with a cotton thread, cut with a bamboo knife, and the end cauterized with a coal of fire. The assistant hangs the placenta in a tree; it must not be buried. The mother bathes herself and returns to the house with the child. She must not do any hard labor for a few days, but does not take to her hammock. The women here, living in natural conditions, seem to suffer very little; they go on doing their ordinary work up to the very time of delivery and after a few hours are at work again. On the Apiniwau we met a Diau man who had brought a message from the Diaus, ten days away, to the Parikutus inviting them to a great feast and dance. The man had his wife with him as his only companion. The night before they arrived, they stopped on the river bank as usual and built a little leaf shelter. During the night his wife gave birth to a child and at daybreak they were on their way again, the wife steering the canoe as before.

The child is cradled in an ordinary hammock, or a small one made of bark or fibre for the purpose, and when old enough to sit up it is placed on a mat on the floor. While working about the house the mother carries the baby sitting astride her hip or in a broad band or bandoleer of bark or woven cotton (see Plate III). The child sits in the loop in front of the mother's left arm with its legs together against her side. A great deal of affection is bestowed upon the children by both parents, but they are not spoiled by overindulgence. The children nurse until they are three or four years old when they begin the labor which belongs to their sex. A boy goes with his father on his journey or to his work in the field, while a girl assists her mother in her work about the house, peeling cassava roots or carrying firewood. Boys and girls never play together nor work together. One seldom sees girls at play, but boys are often found together shooting at insects or birds with their bows and arrows. Children are taught respect for their elders, and it is rare indeed that they need reproof. I never saw a child punished nor one misbehave in the company of older people.

COUVADE

Couvade is that curious custom, occurring sporadically in different parts of the world, which compels a father to take his bed for a period after his wife has given birth to a child. For a month the Macusi father must confine himself to his hammock and restrict his diet to certain articles of food. He must do no hard labor, nor kill any large animal; particularly he must not kill a snake or an anteater for a year. He must not shoot any animal, bird or fish, nor is he allowed to eat game so killed by another. He may catch fish with a hook or catch them with his hands. He is therefore confined to a fish, fruit and vegetable diet. This is quite enough ordinarily when the birth takes place at home, but when one is on a journey or visiting he may have difficulty in getting enough to eat. We had an opportunity to observe the Diau, whose child was born while on a journey, for we lived and traveled with him about a month. We all got on well at the Parikutu village, for these people had a great field of sugar cane and everyone spent the day chewing. They had no cassava old enough to use in making bread, so when we started on our eleven days' journey with the Diau the best we could do for food was to fill our canoes with sugar cane, which would last only a few days. On the way we killed plenty of monkeys, birds and other game, but found only a few nuts, a little of the fruit of the abiu and a few fish. Our poor guide, the Diau, nearly starved, got thin, weak and useless. When we arrived at the first of his villages he was unable to go on with us two days farther to his own home and sent a friend instead. His taboo would not allow him to eat any of our game shot with a gun or bow and arrow although we had plenty. He and his Parikutu companion spent all their time fishing and looking for fruit and nuts, while we were hunting. If he had been in his own village when the child was born he would have spent the month in his hammock eating the prescribed food which was brought to him; as he was away from home he worked in the canoe and sought his own food, yet he would have starved rather than eat the forbidden food. At another time two Waiwais went with us for seven days and had great difficulty in getting enough to eat for the same reason. They refused to eat with us and the other Waiwais. When the men were ready to return to their village these two, who had babies at home, seeded some fresh wild cotton, soaked it in water and then rubbed the wet cotton on the legs and arms of the three strong young men and a boy at the village and on

Ogilvie and me but not on our Wapisiana boys nor the old men at the village. This cotton they would carry home and rub over the bodies of their boys so that they might grow into strong healthy men. We were often unable to employ men because they could not disregard the obligations of keeping the couvade. We thus learned to appreciate the force, even if we could not understand the meaning, of this curious custom. When one studies such a custom at long range, he is sure to say to himself that he could easily understand its significance and work out its origin if he could only see it in operation. When we suddenly realized that we were in the midst of it, we found ourselves utterly unable to form a complete conception of its inner meaning because the people practicing it had no notion of its origin, meaning or effect upon their own lives or that of their offspring. They adhere to the inherited custom without question. They are responsible for keeping it only, not for the institution of it or the effect of its keeping upon society. They say the custom is kept up for the physical wellbeing of the child. They seem to think there is some mysterious physical relation existing between the father and the child. The mother's relation to the child is quite natural and obvious, but the father's relation is most mysterious from the very beginning. If you ask a man why he will not eat meat, he says he does not know or that it would harm the child. If you ask him how or why it would injure the child, he does not attempt to answer. He only knows that any infringement of the regulations of the couvade causes the child to suffer.

Names and Kinship Terms

The Macusis address each other in terms of relationship within the family group. A child is called a child, little brother or sister, and is not named until some act or peculiarity calls attention to the individual and fixes the name. Some mental or physical resemblance to an animal gives a man the name of the animal: A man was called waipingpana because his ears had some of the peculiarities of a deer's ears; a fat man, kiwang, a peccary; an awkward fellow, jaremakwita, falling down; a woman, emiwariyangong, mother of bad children; a girl, tangsa, a growing girl.

A man calls his cousin wife onobu when he is first married, but after she has given birth to a child, he calls her waraiyorang, mother of sons, or wuriyang, mother of daughters, or murĕyamaissang, mother of children. A father calls his boy umu, my son; a mother calls him waraiyo, male child. Men and women call their grandchildren upá, regardless of sex. A man calls his sisters' daughters, patse, or daughters in law, whether or not he has a son who will marry or has married one of them, and he calls his sisters' sons paito, or sons in law but his brothers' sons he calls umuri. A woman calls her brothers' sons wanafu, or eligible to marry my daughter. A boy calls his father's sisters wana or mother in law, not mamai, aunt; but if he marries outside the cross cousin group he calls his mother in law mamai, aunt. A boy calls all his girl cross cousins ewuruci, or girls to marry; and their brothers he calls yaku, or brother in law. His own sisters and the other girl cousins he calls by the same name, uri, and they call each other uri. Men not brothers who marry sisters call each other yaku, or brother in law, even if they are cousins.

Death

Man should live forever if it were not for the kenaimas and evil spirits which lurk about and kill him whenever opportunity offers. When anyone dies he is usually buried at a distance from the house without any ceremony; but an old man is sometimes buried in the floor of his house and the place vacated. One dies in his hammock and is carried in it on a pole to his burial place. The grave is sometimes lined with bark and bows, arrows and other personal belongings buried with the body. The immediate relatives take charge of the burial. They never touch the corpse, as there is no need for it, but they are not especially afraid of the dead. When a husband dies his widow, if her father is not living, goes with her children to the home of her brother or sister. She may marry again soon and take or leave the children as is most convenient. Children are always an asset.

Death ends all; dying is finishing; there is nothing more. Yet there is a spirit of the dead person, called katumba, which lingers for a time after death and then disappears. The soul of living man is called tekatong.

MOURNING

When a wife dies her husband shows no signs of grief, but he may leave the place and build another house. When a husband dies, his wife removes all her ornaments for a short time and spends some time in quiet weeping. As all Indians are reticent it is impossible to determine the amount of the grief which they do not outwardly exhibit. When we were visiting a Parikutu village on the Apiniwau, we witnessed a wailing for the dead. Some man had recently died, and the chief told the men who came with us about it. The same method is in practice among all the interior Carib tribes. When a man dies there is wailing every evening for several days. Then for several months, whenever a visitor, friend or relative comes to the village, the death is spoken of and the wailing begins. The chief or some other man tells of the death and recites the story of the man's life, his good deeds and how much he is missed. All work stops, the women sit in their hammocks and weep, while the men wail and cry aloud. The speaker begins calmly in a low voice but as the feelings are aroused his voice rises and increases in fervor spurred on by the growing emotions excited in his hearers and the responses from the wailers, until the forests take up the echo and the whole place is filled with the volume of sound. At the end of twenty minutes it stops in deathly stillness. Slowly the women dry their eyes, crawl out of their hammocks and go back to work, while the men in a few minutes resume their talk of other things. It is a most impressive ceremony, mournful yet musical and soothing. While I listened it sounded strangely familiar, and then I remembered a negro funeral I once attended in the Mississippi Delta and I fancied I could hear the voice of the preacher praying for the soul of the departed and the women weeping and the men shouting "Amen; bless the Lord," etc.; it was exactly the same kind of thing.

CREATION

In the beginning the world was full of bad men. Two brothers, entcekerang the elder, and anikĕ, called the jester, seeing the evil of the men turned them to stones. They may be seen today scattered here and there over the savannah and in the mountains.

The two brothers needed food. They caught an acouri (*Dasyprocata acouchi*) and found on his teeth the stains of all kinds of fruits and nuts. They asked him where he got these things, but he would not tell them. So they asked the squirrel (*Sciurus aestuans*) to watch the acouri and see where he went for food. He did as he was requested and after a time he saw the acouri go to a very large tree under which the ground was covered with every kind of fruit and vegetable. The squirrel climbed the tree and saw all these things growing on the tree in great abundance. He returned to the two brothers and reported what he had discovered. They sent him back to bring home some of the fruits and other things for their observation. He was afraid, but finally went and brought fragments of many things, and the brothers, seeing these, believed. They then requested the squirrel to take them to the tree, that they might see it also. He did so, and they were greatly pleased to find so many good things all growing on one tree. They decided to cut the tree down so they could get all these things to plant and to grow for themselves because they had no cultivated food plants. The two brothers set to work with their stone axes to fell the tree, one cutting on each side. The younger brother said, "Tree, be hard on my elder brother's side," and it was so. Then he asked his elder brother how he was getting on, and the elder brother answered, "The tree is so hard I cannot cut it at all." As he said this he stopped working and looked around on his younger brother's side. To his surprise he found a great notch cut and said to his younger brother, "Let me cut on your side and you cut on mine," and it was so. The younger brother said, "Tree be hard on my elder brother's side," and it was so. At last, however, the tree was cut down. Before they began to cut down the tree they made a great mat to cover all the ground under the spreading branches of the great tree to catch all the fruit, vegetables, nuts and things when the tree fell. From the indicated size, the mat must have been five or six hundred feet across its diameter. After the tree fell they gathered and planted all the fruits, vegetables, nuts and edible things they have today.

The Flood

The great tree contained water also and when they cut it down the water flowed out and covered the whole world. The water got deeper and deeper so the two brothers, to save themselves, climbed two miritci palm trees (*Mauritia flexuosa*). As the water increased the palm trees grew higher and higher, always keeping just above the flood. The two brothers ate the palm fruit and threw the seeds up through the leaves and they fell into the water thus building up the land. The water subsided and withdrew to the lakes and the trees shortened to their present height. The flood covered the mountains and lasted twenty days. When the two brothers cut down the tree, the younger brother said, just as it was falling, "Sun, quit shining," and it was immediately dark. After the flood had subsided and the two brothers had come down from the palm trees, the younger brother said, "Sun, shine," and it has been shining ever since.

Origin of Fish

There were no fish in the lakes or rivers, and the two brothers wanted fish. The younger brother said to his elder brother, "Let us poison this pool; there are no fish in it. You go down to the other end and poison it there, and I will poison it here." The elder brother went to the other end of the pool and as he stepped into it to poison the water, the younger brother said "pirai (*Serasalmo niger*), go down and bite my brother," and he did so. The elder brother said to his younger brother, "You said there were no fish in the pool, and here I am bitten by a pirai." Then the younger brother said, "Electric eel (*Gymnotus electricus*), go down and shock my brother," and he did so. Thus fish came to the pools.

Disappearance of the Two Brothers

After a long time the two brothers went away. They heard the sound of a conch shell blowing and followed after the sound down the Essiquibo to a place now called Pairakaira, where they built the great rock falls. There remain today in an enormous rock the footprints of the two brothers marking the spot from which they left the world. The footprints are still visible and the rock is known today as the jumping stone.

CATS' CRADLES[1]

The Macusis, like the neighboring Wapisianas and many other Indians, amuse themselves by making string figures in the forms of animals or other natural objects. Many of the forms found here are common in other parts of the world and bear similar names. The exact method of manipulating the string may differ in a definite case, while the resultant form may be identical. The nomenclature used in making these records is adapted from that devised by Drs. Rivers and Haddon. As is well known to every worker, it is sometimes very difficult to describe the movements so explicitly that another may work them out correctly. A string over the finger is called a loop;

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[1] For other cats' cradles from British Guiana see (1) W. E. Roth, Revue des Études Ethnographiques et Sociologiques, 1908, p. 193. (2) Frank E. Lutz, Anthropological Papers, Amer. Mus. Nat. Hist., Vol. XII, Pt. 1, 1912. (3) W. C. Farabee, Anth. Pub. University Museum, Vol. IX, pp. 123–131, 1918.

one on the thumb side of the hand is radial; one on the little finger side is ulnar; one across the back of the hand is dorsal; the loop nearest the tip of the finger is distal, and the one nearest the hand is proximal. No words, stories or songs are used to accompany the movements of the hands. The frequent shifting of loops from the fingers of one hand to the corresponding fingers of the other seems to be characteristic of Arawak and Carib cats' cradles.

1. WAITAI, Fish Trap

Place string over backs of both hands. Take up with the lips the centre of the ulnar string from the proximal side; take up on the back of the right little finger the left hand section and on the back of the left little finger the right hand section; release the lips and extend. Take loops off backs of hands and place them on corresponding index fingers. Take up with backs of thumbs the radial little finger strings over index strings. Place proximal index string over the thumb also. Pass the proximal radial thumb string over the thumbs to the palmar side. Insert index fingers into the triangles adjoining the thumb loops, release the little fingers, rotate the wrists inward and extend. (Fig. 2.)

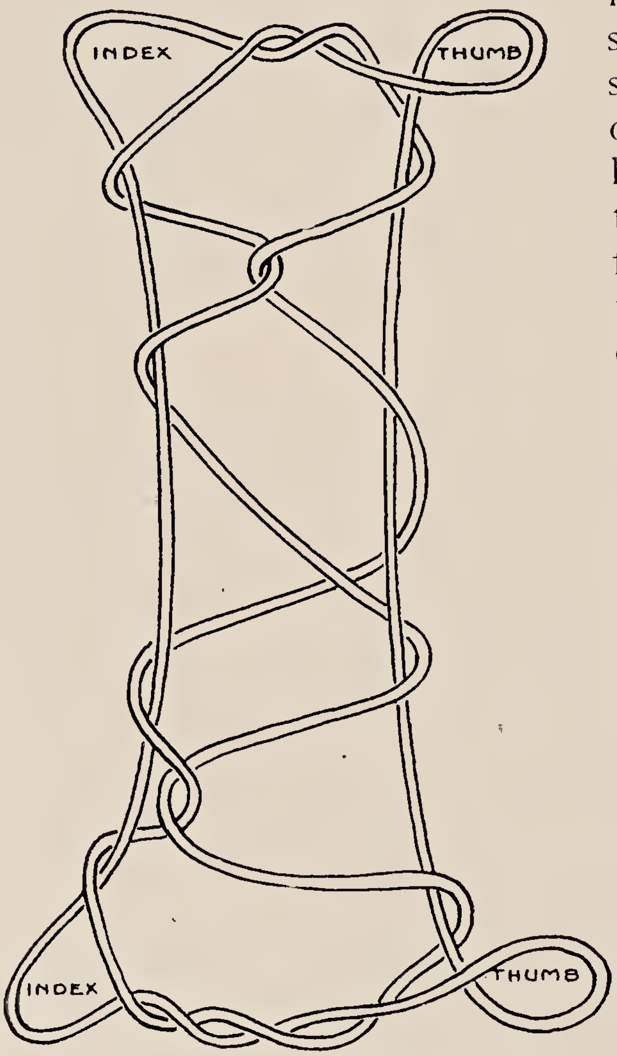

FIG. 2.—WAITAI, FISH TRAP. MACUSI

Parkinson found the same thing among the Yoruba of West Africa; Cunnington found it in Central Africa; Haddon, in South Africa; and I among the Wapisianas of the Guianas and the Waiwais.

2. Watisa, a Fly

Place the string twice around the neck. Take the right-hand string on right thumb and little finger and left hand string on left thumb and little finger. Take up palm strings on backs of opposite indexes. Pass the head through between the index strings from the proximal side. Release all but the little fingers and extend. It comes off the neck. This was found by Cunnington in Central Africa, by Haddon in Uganda and Rhodesia and by myself among the Arawaks. The foot or some other object may be used in place of the head.

3. Pacangera, Two Baskets

Place loop over thumbs and little fingers of both hands. Take up from the distal side the left hand palmar string with the hook of the right index; twist half way around to the right and place the loop over the left little finger and thumb. In the same manner take up the right hand palmar string and place over the right little finger and thumb. Take up on right index and third finger the left thumb and little finger loops from the proximal side. In the same manner take up on left index and third finger, the right thumb and little finger loops through the right index and third finger loops. Throw over in the palm and release the proximal thumb and the proximal little finger strings. Take up on backs of right index and third finger the loops of the left index and third finger. Take up on backs of left index and third finger the original loops of right index and third finger over the new loops. Extend, and the result is a basket-like figure in each hand with loop around all except the ring fingers.

This figure is found also among the eastern Arawaks.

4. ROCEBIBU

Place loop back between index and third finger of left hand; bring the loop forward over the ends of these two fingers and make an extra loop around them. Pull up through the loop from the distal side the index string and loop it around the thumb; in the same manner loop the third finger string around the little finger. Pull over to the palm and release the index and third finger loops. Draw tight the two original strings, and the resultant figure is a square in the middle of the palm (Fig. 3).

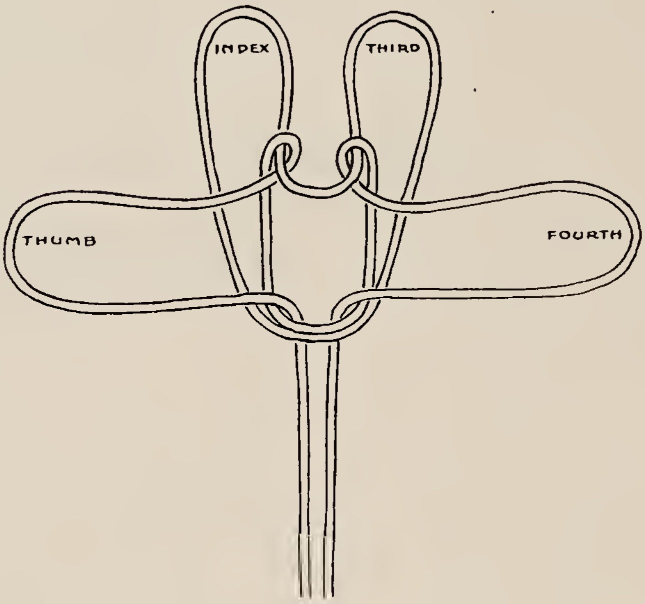

FIG. 3.—ROCEBIBU. MACUSI

5. ARATAWAII, Howling Monkey's Jaw

Place string as simple loops around both wrists. Pass the radial string back between the thumb and index and the ulnar string back between the third and ring fingers of left hand. Bring both strings forward between index and third finger. Place index string over thumb and third finger string over little finger. Take up index palm string from the proximal side on index of right hand and the third finger palm string on the third finger of the right hand. Bring over and release the left wrist loop. Place index and third finger loops of right hand on corresponding fingers of left hand. Bring over and release original index and third finger loops. Transfer index and third finger loops of left hand to the corresponding fingers of the right hand and draw out. As seen from the side it resembles the heavy head and neck of the howling monkey (*Mycetes seniculus*) (Fig. 4).

This one is found also among the Arawaks in the Guianas under a name with the same meaning, and also among the Waiwais.

6. Morói, Spider's Web

Place strings between the second and third fingers of the left hand; bring loop over these two fingers to the palm; do the same with corresponding fingers of the right hand being careful to keep strings straight. Take up the loop of the left second and third fingers on the backs of the corresponding fingers of the right hand; take up the original loops of the right hand on the backs of the corresponding fingers of the left hand and draw out. Have an assistant throw a new string over this form allowing the loose ends to hang down on both sides; pass the new string through the four finger loops; with downward movement of second and third fingers of both hands, take new string on hooks of fingers, thus releasing the original string. Have the as-

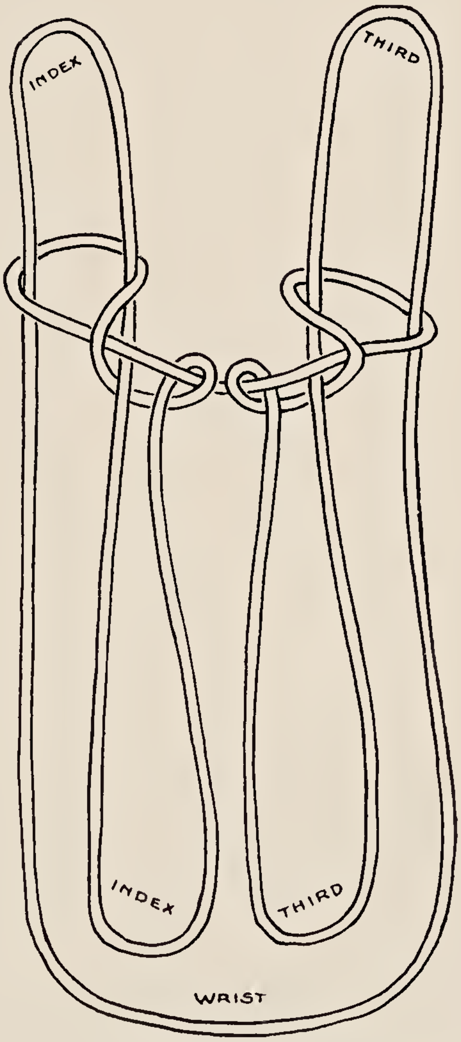

Fig. 4.—Howling Monkey's Jaw. Macusi

sistant take the left hand loops and draw out in the form of spider's nest (Fig. 5).

This is found under the name of spider's web among the Wapisianas.

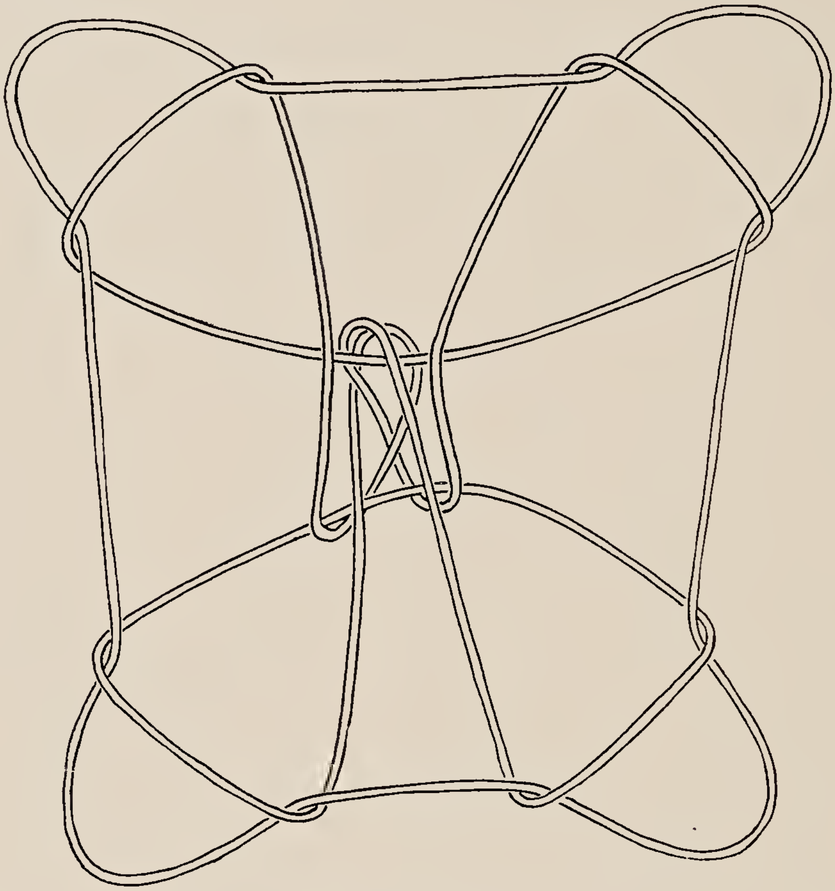

FIG. 5.—SPIDER'S NEST. MACUSI

7. MOA, a Grub for Fish Bait

Hold left hand with palm in a vertical position. Hang the loop over the thumb allowing the strings to fall down the palmar and dorsal sides of the hand. Pass the right index from the proximal side beneath the palmar string, hook the dorsal string from the distal side, bring it through between the thumb and index, give it a right hand twist and place the loop over the left index. Draw tight the pendant strings. Again pass the right index beneath the palmar string and between the index and third finger, hook it over the dorsal string, bring it forward, twist as before, and place the loop over the third finger. In the same manner place loops over the ring and little fingers. Remove the loop from the thumb and with the right hand pull the palmar string. All the fingers are released.

This trick is found among the eastern Arawaks, the Macheyengas on the Urubamba in Peru, East Africa (Cunnington), West Africa (Parkinson), Torres Straits (Haddon), Alaska Eskimo and Plains Indians (Jayne).

8. OWAMGINTO, a Double Basket[1]

Loops over little fingers and thumbs. Take up from the distal side the left hand palmar string with the hook of the right index. Twist half around to the right and place the loop over the left thumb and little finger. Take up the right palmar string and place in the same way over right thumb and little finger. Take up on right index and third finger the left thumb and little finger loops from the proximal side. In the same way take up on the left index and third finger, the right thumb and little finger loops within the right index and third finger loops. Throw over and release the proximal thumb and the proximal little finger strings. Take up on backs of right index and third finger the loops of left index and third finger. Take up on back of left index and third finger the original loop of right index and third finger over the new loops. Extend, and the result is a similar basket figure in each hand.

9. KEFULIKACO, Mouse in a Trap

Hold left hand with thumb uppermost. Hang the string over the thumb, letting the loop fall down the palmar and dorsal sides of the hand. Pass the right index beneath the palmar string and between the thumb and index; then around the pendant dorsal string, bringing it through between the thumb and index. Give the loop a right hand twist, place it over the left index and pull tight the pendant string. Again pass the right index beneath the pendant palmar string and between the index and the middle fingers, hook it over the dorsal string, bring it forward, twist as before, and place over the middle finger. In the same way make loops over the ring and little fingers. Remove the thumb loop and with the right hand pull the palmar string. All the fingers are released.

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[1] Those following were obtained from the Waiwais.

This trick is found sporadically all over the world; in Africa, Asia, Philippines, Eskimo, Plains Indians and many South American tribes.

10. Kamile, Two Fishes Together

Loops over little fingers. Take up on thumbs the ulnar little finger string distal to radial string. Take up palm strings from proximal side on indexes. Release thumbs. Pass thumbs distal to index strings and take up on backs of thumbs the radial little finger string. Place index loop over thumbs also. Transfer proximal thumb loop over tip of thumb to palmar side. Place each index into its triangle on palmar side of each thumb from the distal side, release little fingers, rotate wrists and extend, holding figure on thumbs and indexes. Two figures result. Found among the Arawaks and by Cunnington in Central Africa.

11. Mimu sakualitilitĕ, a House

Place loop over back of left hand; pass back between thumb and index and third and fourth fingers; bring forward between second and third fingers; place third finger string back of little finger and the other string back of thumb without twisting. Take up the two original palm strings on the backs of the second and third fingers of right hand. Take up these second and third finger loops on the backs of the corresponding fingers of the left hand. Take up the original second and third finger loops of the left hand on the backs of corresponding fingers of the right hand. Bring over the string from the back of the left hand and pull out. These remain a loop around the second and third fingers of the right hand, each loop holding midway between the hands two other loops. The string from the back of the left hand remains around all strings near the bottom.

12. MIMŬ, a Big House

Place string over back of left hand; twist to the right and pass back between first and second and third and fourth fingers; bring forward between the second and third fingers and pass back of the first and little fingers. Take up the two original palm strings on the backs of the second and third fingers of the right hand; take up these second and third finger loops on the backs of the corresponding fingers of the left hand. Take up the original second and third strings on the backs of the corresponding fingers of the right hand. Bring over the loop from the back of the left hand and pull out. Three remains a circular house with a string around the bottom holding the rafter strings. This differs somewhat from the Wapisiana house.

13. KAMALILI, a Beaded Ornament

Place loop over backs of both hands. Take up the right-hand ulnar string from the inside of the radial string with hook of little finger and let it pass back of little finger of left hand. Take up the palm little finger string on the back of little finger of right hand. Take loops from wrists and place them over corresponding indexes. Take up on backs of thumbs the near little finger string. Pass index loops over thumbs also. Bring over and release thumb loops. Place tips of indexes in the triangles inside of thumbs but outside of thumb strings. Turn palms outward releasing the little fingers. There remain two horizontal strings with five cross strings.

14. WATCIWATCI, Two Little Turtles

Place loop over left wrist. Pass back between thumb and index and third and fourth fingers; bring forward between second and third fingers, and take the long loop on the back of the right hand. Take up on the backs of the second and third fingers of the right hand the first and second and the third and little finger strings. Bring over to the palm the loop from the back of the right hand. Take up loop of the second and third fingers of the right hand on the backs of corresponding fingers of the left hand. Bring over the original second and third finger loops of the left hand and release. Take up the second and third loop of the left hand on the back of the corresponding fingers of the right hand and draw out. Two circles will slide up the two long strings toward the right hand.

15. TCĔKAWA, a Crab

Place the string back of the thumb and little finger but in front of the other fingers, the same with both hands. Take up palm strings with a hook and inward twist of the indexes. Take the thumb loops on the little fingers. Place the big toe between the little finger loop and release the little fingers. Draw out with indexes and a knot is securely tied around the toe.

16. FOÖTO, a Clam

Place the string around both wrists. Pass back between the thumb and index and the third and fourth fingers. Place thumb and index string over the little finger and the third and little finger string over the thumb. Do the same with the other hand. Place the second and third finger loops of the right hand on the corresponding fingers of the left hand. Take up the original second and third finger loops of the left hand on the backs of the corresponding fingers of the right hand. Draw out, and an equilateral triangle remains between the hands.

17. MAIYŎSĬ, a Spider

Place the string over backs of both hands. Pass back between thumb and index and third and fourth fingers of left hand, bring forward between second and third fingers, place third and fifth string over thumb and thumb and index string over little finger. Take up on backs of second and third fingers of the right hand the thumb and third finger string and the second and little finger string. Bring over and release the right hand back string. Place loops of the second and third fingers of the right hand over corresponding fingers of the left hand. Bring over and release the original second and third finger loops. Take up the remaining second and third finger loops on the backs of the corresponding fingers of the right hand and draw out.

18. WATIWELITO, Sex Organ

Place the string over back of left wrist. Pass back between the thumb and the index and the third and fourth fingers, and bring forward between the second and third. Place left string back of the thumb and the right string back of the little finger. Take up thumb and index and third and little finger strings on the backs of the second and third fingers of the right hand. Bring over and release the left hand back string. Take up the loops of the second and third of the right hand on the corresponding fingers of the left hand. Bring over and release the original second and third finger loops. Take up the remaining loops on the corresponding fingers of the right hand. Draw out and a diamond shaped figure remains in the middle.

19. MALKANUNĬ, the Six-o'clock Beetle

Place the string over the left wrist. Pass radial string back between the second and third fingers and the ulnar string between the thumb and index. Take up the radial string in the palm with a hook of the right index, twist inward and place the loop over the left index. Bring long loop forward, leaving it around the thumb, and remove the other string from between the second and third to between the fourth and little fingers. Take up the thumb and little finger strings on the backs of the second and third fingers of the right hand. Bring over back of left hand loop to the palm. Release index loop and draw out holding the index loop in the mouth until tight when this loop stands up.

20. FOTCOKWA, a Drink

Place a loop over the thumb of the left hand. Place near string around the second and the other around the third finger of the left hand and the near one around the fourth finger. Take long loop on back of little finger of right hand. Take palm string of the third finger of the left hand on the back of the fourth finger of the right hand; the palm string of left second on the back of right third and that of left one on the back of right second. Remove the loop of left four to left five, that of right second to first, third to second and fourth to third. Take up inside little finger strings on the backs of the thumbs and the inside thumb strings on the backs of the little fingers. Place the second and third fingers of each hand down through the triangles made by the strings around these fingers and take on the hooks of these fingers the double strings. Turn palms outward, releasing all other strings and draw out.

The fish trap and the howling monkey's jaw are the same as those bearing similar names among the Macusis.

LANGUAGE

The linguistic material here recorded was secured almost entirely from Mr. Christopher Davis, an educated Englishman from Demarara who for fifteen years had been living among the Macusis. He was married to a Macusi woman and had three children; the eldest of whom, a girl of fourteen, speaks English perfectly. With the aid of his wife and daughter Davis had translated many selections from the Bible and many passages from the Prayer Book. Every Sunday he held services in the church erected for the purpose by the Indians. I attended one of his meetings and was impressed with the attitude of the Indians toward the new religion. Davis read translated passages from the Bible, gave a short address in which he made application of the lessons read to the daily life of the people and closed with a song service. The Macusis greatly enjoy music and sing the English hymns, using the English words without understanding them. Some fifty or sixty men, women and children were present and all gave close attention to what Davis had to say, but the spirited way in which they sang gave me the impression they came to enjoy the music. Davis was the only Englishman in the colony who could speak the Macusi language. I planned to return to his village and record the remainder of his translations, with notes on the use of the language, but my trail led to the interior and down the Corentine instead.

KEY TO THE PHONETIC SYSTEM

a	as in	f*a*ther	ai	as in	*ai*sle
ă	“	h*a*t	au	“	h*ow*
ȧ	“	*a*ll	oi	“	*oi*l
e	“	f*e*te	c	“	*sh*ip
ĕ	“	m*e*t	tc	“	*ch*ain
i	“	p*i*que	hw	“	*wh*en
ĭ	“	p*i*n	kw	“	*qu*ake
o	“	n*o*te	ñ	“	cañon
ŏ	“	n*o*t	a’a, i’i as broken vowels		
u	“	r*u*le	a.i, a.u, o.i as individual sounds		
ŭ	“	b*u*t			

PERSONAL PRONOUNS

I	ure
you	amura
he	mukera
she	mukera
it	murere
we	ana
you	aiyamura
they	injamura

Possessive Pronouns

my	u,	upapai	my head
your	a,	ateya	your hand
his	i,	ipu	his foot
our	ana,	anate	our house

mine	ure murerĕr
yours	amuramurerĕr
his	mukeramurerĕr
ours	ana muererĕr
theirs	enjenang yemane murerĕr

Demonstrative Pronouns

this (*m.*)	misĕri
this (*f.*)	sĕri
this (*n.*)	sĕni
that (*m.*)	mekĕri
that (*f.*)	mukĕri
that (*n.*)	merĕri
that, remote	tcĕnĕ

Comparison of Adjectives

good	wakubĕ
better	wakubĕfumbĕ
best	wakubĕfumbĕru
bad	eribĕ
worse	eribĕfumbĕ
worst	eribĕfumbĕru
long	kosang
longer	kosangmukera etendairo
longest	kosangmukera toendairo fugero
heavy	amuine
heavier	amuineseni entendairo
heaviest	amuenesenikong endairo fugero

PLURALS

Nouns are made plural by adding te, kong, gong, zang, manate or yamu to the singular form, as:

man	waraiyo
men	waraiyokong
woman	urisang
women	urisangyamu
dog	arimaraka
dogs	arimarakayamu
fish	moro
fish (*pl.*)	moroyamu
tree	yeye
trees	yeyekong
stone	tir
stones	tirkong

Plurality is expressed also by repetition as cilicili, the beads of a necklace.

GENDER

Nouns are not regularly grouped with reference to grammatical gender but sex endings are used as follows:

Masculine	waraiyobe
Feminine	uribemang

A male dog is arimarakawaraiyobe.
A female dog is arimarakauribemang.

COLORS—emenu

The Macusis are experts at matching tints and have the following names for the common colors:

white	aimotung
white (pale)	amotung
blue	engatung
green	rora
yellow	kosaimotung
red	cuiyu
purple	epopiyu
pink	waiaiyu
brown	carapuyu
black	urikutung

PERSONAL NAMES

Aiyukante	The chief
Kiwang	pork or fat
Timui	to stoop
Waikingpana	ear of a deer
Waikingpanayung	ear of an old deer
Yaremakwita	falling down
Azumerata	
Kazawing	(chief)
Uyamoni	
Teberu	(chief)
emiwariyangong	mother of the evil ones

An infant is called child, brother or sister and does not receive an individual name until some peculiarity of appearance or manner has been observed.

NAMES OF PLACES

Bononi
iwita—at the creek
Kazawing
mutura—on the hill
napikiri
Okaituna—at the river
Puerueta
Rupononi
Tirka—like stone.—tir, stone; ka, like or having
Tirkaping—mountain overlooking tirka.—ping, forehead
Upikari—end of a hill.—pika, to pick off
wŭ—on the mountain
yani—at the spring

NUMERALS

1. tiwĭng
2. săgony
3. seremŭ
4. săkrebŭna
5. miatoiking
6. tiwĭngmiabŭnatimotai
7. săgonymiabŭnatimotai
8. seremŭmiabŭnatimotai
9. săkrebŭnamiabunatimotai
10. miatĭmĭnaure
11. tiwĭngpubunatimotai
12. sagonypubonatimotai
13. seremŭpubonatimotai
14. sakrebunapubonatimotai
15. putoikingtimotai
16. tiwĭngpuratwitimotai
17. sagonypuratwitimotai
18. seremŭpuratwitimotai
19. sakrebunapuratwitimotai
20. tiwĭngpĕmongong

The meaning of the words for the numerals from one to four is not understood. Five is made up of mia, fingers and toiking, on one side; that is, all the fingers on the right hand have been counted beginning with the little finger. Six is tiwing, one; mia, finger; buna, on and timotai, to put; that is; one, the thumb, is added to the other hand. Seven, eight and nine add two, three and four by the same method. Ten is mia, fingers and tĭmĭnaure, all. Eleven is tiwing, one; pu, foot; buna, on; timotai, to put. The words for twelve, thirteen and fourteen are made up in like manner; in fifteen the foot is put on one side and in the other numbers up to twenty one, two, three and four are added to the puratwi, or other foot. Twenty is one person.

PHRASES

1. Uyung uschang nere
My father my mother and

2. Wakube uwutisi wani
good My sister is

3. cimerika pe upi wani
little My brother is

4. perangbŭ mukere wuri wani
sick That woman is

5. umu miseri
my son This (is)

6. uyenge seri
my daughter This (is)

7. upi seni
my field This (is)

8. uyung mang yenebe
My father (present state) sick (Is)?

9. onongze ayeyiwŭ
Which your house (is)

10. Onongze itekung arimaraka
Which your domestic dog (is)?

11. tarako kenangure
hat with me (I have)

12. tarako kenaug amure
hat with you (Have)?

My father is in the house
13. uta ta papa mang
house in father is

I see a man and a woman
14. warayo ramafo we serere urineri
man see persons now woman

The dogs bark at night
15. aremaraka yamu seura futi awarungya
dogs (plural) bark (plural) night

The jaguar was killed
16. kaikuci iwabu toya iwŭzabe kaikuci wamabu
jaguar killed they was

The man was sick
17. parangbŭ mukera waraiyo wamabu
sick he man was

He is a sick man
18 parangbŭ kung mukera waraiyo
sick with he man

John killed a deer
19. waiking wufu Johnya
deer killed John

John saw three jaguars
20. seriwa kaikuci yanu eramabu Johnya
three jaguars saw John

I have two hats
21. sakanang uyarako
two my hat

I am looking at a man and a woman
22. waraiyo ramaiya serere urineri
man looking at now woman

Are you hungry?
23. iwangbe manang manati
hungry are you (pl.)

Are you thirsty?
24. animbai manang
drink want you

The father loves his son
25. yung wana timu yapurubŭ
father son his loves

He gave the woman a stone
26. tirke uri irebabuiya
stone woman gave he

He gave the fowl to John
27. kariwinake waraiyo refabuiya John
fowl (masculine) gave he

The ground is very rough
28. arairabŭtafe pata mang
rough ground (present tense)

The hill is very high
29. kowuni fuguru muteru
high very hill

Jane is larger than Mary
30. Mary yendai Jane wane okaipe
more than is large

It pleases me
31. uwakerebe ramafo wai
please see me

It makes me glad
32. unwakemaiya

I want it
33. merere yuse wai
it want me

John sees you
34. Johnya ayerama formang
John you sees (sing.)

I shall tell him
35. karame kĭuteseti ipei
tell (fut) to him

Give them to her
36. mukeru ibia to antikei
her them give

Who is it?
37. anĕbĕnai
who is

What do you want?
38. ŭ yuse manang
what want (singular)

Who told you?
39. ania muerer karimukfonai
who that tell

Which arrow do you want?
40. onong yeka peru usuana amerer
which like arrow want you

Where are you going?
41. anongpata ate amuerer
where going you

Why does he not come?
42. onongbe aiepŭ bura manang
why he comes not (sing.)

Where did he go?
43. anongpata uitombonai
where he go (question)

Go before me
44. urape miare
me before go

Come after me
45. uenaire acike
me after come

Shall I tell you?
46. karamekuya
tell you

TEXTS

SAINT JOHN, FOURTH CHAPTER, BEGINNING WITH THE FORTY SIXTH VERSE

46. Moro ipeku waraio wanibe tiwing, parangbe
their great man was one sick
imu wanibe Capernaum pona.
his son was Capernaum on

47. Judea fai Jesus ipupe Galilee pona etatuiyafe
Judea from Jesus came Galilee on heard he when
ibia atebe, yenai iya nere ipe aiitobe, imu
near him went, ask he and to him that he may come his son

puripanalobeiya kaima; aminge bura assamanda kufu
to heal him say far not you die
wanibe yening.
was because

48. Mereri yai tabe Jesus ya ipe, panebĕ tobangke
that time said Jesus to him signs wonder
pokombe ramasa ayanakong bura wani ya, yapura
with see ye not is if believe
ayanakong bura wani.
ye not is

49. Mekeri ipekure waraio ya tabe ipe, acikeye
that great man said to him come thou
umu samanda arape.
my son dies before

50. Jesus ya tabe ipe, atake ayemari tawure;
Jesus said to him go thou your path way
enneng amu koma nafomang. Makeré waraio ya Jesus
alive your son lives at the present that man Jesus
maimu yafurube inekaremekebe ipe, temarita weri
word believed that he told to him his way way
alebe nere.
went and

51. Mekeri utebe tane ipaitori tonnomg ya poribe,
that you go while his servants found
karimekebe toya nere ipe, enneng amu komanafomong.
told them and to him alive your son lives at present

52. Merere yai pe, karamafofaiiya tope
that time (hour) about ask he of them
upuribomube biatebe. Komombura tabe toya ipe,
his health to turn began. Yesterday said they to him
asăgonymiabŭnatimotai ekomima eturumukabe.
(at) seven fever loosened

53. Yung nifutube merere rema merere ya rema
father knew that same that in same
Jesus ya tabe ipe enneng amu komanafomang;
Jesus said to him alive your son lives at present
yafurubuia nere, tomarere, tammonoware itewe nere.
believed he and himself all others and

54. inere săgony tabangke serere Jesus nikubube,
again two wonder this Jesus did
Judea pata bai ipakesabe Galilee pona.
Judea place from he came out when Galilee on

ST. JOHN, CHAPTER 4

46. . . . And there was a certain nobleman, whose son was sick at Capernaum.

47. When he heard that Jesus was come out of Judea into Galilee, he went unto him, and besought him that he would come down, and heal his son; for he was at the point of death.

48. Then Jesus said unto him, Except ye see signs and wonders, ye will not believe.

49. The nobleman saith unto him, Sir, come down ere my child die.

50. Jesus saith unto him, Go thy way; thy son liveth. And the man believed the word that Jesus had spoken unto him, and he went his way.

51. And as he was now going down, his servants met him, and told him, saying, Thy son liveth.

52. Then enquired he of them the hour when he began to amend. And they said unto him, Yesterday at the seventh hour the fever left him.

53. So the father knew that it was at the same hour, in the which Jesus said unto him, Thy son liveth; and himself believed and his whole house.

54. This is again the second miracle that Jesus did, when he was come out of Judea into Galilee.

THESSALONIANS, FIRST CHAPTER

1. Paul	metefo	Silvanus,	metefo	Timotheus	Thessa-
Paul	after	Silvanus	after	Timotheus	Thessa

lonianyamu	churchi	bia	God	ya	yung	mani	ana
lonians	church	near	God		father	is	we

epotori	Jesus	Christ	ya	mani	nere;	tinakongmakŭ
master	Jesus	Christ		is	and	mercy

wane	abianakong,	more	nere,	anayunggung	God
is	you near ye	peace	and	we father of us	God

winafai	ana	epotori	Jesus	Christ	winafai	nere.
side from	we	master	Jesus	Christ	side from	and

2. Uwa tatoke irebatobe ana ya, God bia konoro
thanks say with he gives we God near always
tamonowore aiyamore tongbe ayesabotekong ana ya ana
all you far you mention all we we
epurema gureta;
pray among (in)

3. Embengena komamu tiwamura bura aiyamoro
mindful we live forget not you
eseiyakama moruntake ayewanggong wane, ewakemato
work strength with your hearts is like
eseiyakamato aiyamĕre neri, embeng akomamukong nere
work you and mindful live and
ana epetori Jesus Christ ya ana yunggong ana yenu
we Master Jesus Christ we father of us all God I
yaire nere
in view and

4. Ewewakumabukong uyakonnong ituze wane yening
you loved brothers want is because
God wimong, futu ana ya tane
God side know we while

5. Wake ana ekare ipuke abia nakong maing be
good we message came you near all word is
siking bura, meruntake nere, waki ekatong yai nere,
only nor strength with and good spirit through and
tuke embeng ena gureta nere; futa ayanakong ana
much hope fall in (among) and know ye all we
waraiokong yeruru wambu guretanakong aiyamoro wenai
men custom we were among you your sake

6. Ana wenaire enasakong ya nere, ana epotori
we follow turn (fall) and we master
wenaire nere maing ya pija yanakong tane tuke
follow and word catch you while much
tarimateng gureta, taucimba pokombe waku ekatong wine
ill treatment among joy with good spirit side

7. Mowani aiyamore wanibe apambenakong tamonowore ya purenonggong etobe Macedoniapong Achaiapong nere
so is you were you like all believers to be Macedonia people Achaia people and

8. Aiyamore winŭfai ana epotori God maimu etunge
you side from we master God word sound
epakabu Macedonia pona niking bura nere tize nere
it came out Macedonia on only nor and but and
weruntake uyewuringgong God perwane atawenonggasa
strength with your hearts God to is spread
tamonoworoe pata pona; merere yening ana sewumatotong
all place on that because we speaking for
bura wane
not is

9. Inggamore ya tiwarirenakong abianakong ana ewonze
they (those) themselves you near we get in
yeruru ana wine yembosa, onong wani nere ikuzakong bia
(manner) way we side show how is and images near
bai eratebekong ennemang God bia yairerong God bia
from turned ye living (alive) God near right (true) God near
tanŭtobe nere
serve and

10. Imu nemetobu nere kawinebai inimuzakabe
his son wait and sky side from raised
samandang bia bai, Jesus wane ana imokazang sakoro
dead near from Jesus is we he took out wrath
ipu bia bai
to come near from

Thessalonians, Chapter 1

1. Paul and Silvanus and Timotheus, unto the church of the Thessalonians which is in God the Father, and in the Lord Jesus Christ; Grace be unto you, and peace, from God our Father and the Lord Jesus Christ.

2. We give thanks to God always for you all, making mention of you in our prayers;

3. Remembering without ceasing your work of faith, and labor of love, and patience of hope in our Lord Jesus Christ, in the sight of God and our Father:

4. Knowing brethren beloved, your election of God.

5. For our gospel came not unto you in word only, but also in power, and in the Holy Ghost, and in much assurance; as ye know what manner of men we were among you for your sakes.

6. And ye became followers of us, and of the Lord, having received the word in much affliction; with joy of the Holy Ghost.

7. So that you were ensamples to all that believe in Macedonia and Achaia.

8. For from you sounded out the word of the Lord not only in Macedonia and Achaia but also in every place your faith to Godward is spread abroad; so that we need not to speak anything.

9. For they themselves show us what manner of entering in we had unto you, and how ye turned to God from idols to serve the living and true God.

10. And to wait for his son from heaven, whom he raised from the dead, even Jesus, which delivered us from the wrath to come.

Apostles' Creed

Ure yapurefowai God yungbe tamonowore imeruntari
I believe God father is all is strong
ka kufubuia nong nere; ure yapurefowai Jesus Christ nere
heaven made he earth and I believe Jesus Christ and
tiwinang niking imu ana epotori. Wake yekatong winong
one only his son we master Holy (good) spirit side
yempobe amanong Mary ya tarimatebe toya Pontius Pilate
born virgin Mary illtreated them Pontius Pilate
yon. Aréfube pakenang pona, asamandabe, yunatebe nere,
under Hung across on you died buried and
samandazang pata ya antebe; teseremuwane iweyuyai
dead place in descend third day time
inere tisamandabe bia bai ewemuzakabe, ka ya enukube,
again his death near from he got up Heaven in went up
erentesa nere, merunte fuguru Yung God merunte eteya po;
sits now and strong very father God strong his hand on

merere pata bai aipetong euneanggong yefuzu samandazang
that place from he came will living to judge (know) dead
nere.
and
Ure yapurefowai wake itekatong; tamonowore wake Church
I believe good spirit all good Church
kaitcerenggong; wake timurukumbanggong mo tuwezanang-
even (agreeing) good those that gather together quiet state
gong; erire rumakatotongbe, teza awomutong, euneunga-
sin loose for when body to arise alive you live for
komanamutong nere ewetikatong pefung. Amen.
and to finish for is not Amen.

Apostles’ Creed

I believe in God the Father Almighty, maker of heaven and earth:

And in Jesus Christ his only Son our Lord, Who was conceived by the Holy Ghost, Born of the Virgin Mary, Suffered under Pontius Pilate, Was crucified, dead and buried. He descended into hell; The third day he rose again from the dead; He ascended into heaven, And sitteth on the right hand of God the Father Almighty; From thence he shall come to judge the quick and the dead.

I believe in the Holy Ghost; the holy Catholic Church; The Communion of Saints; The Forgiveness of Sins; The Resurrection of the body; And the Life everlasting. Amen.

Absolution—Iramakato

Tomonoweri merunti God ana epotore Jesus Christ yung
all strong God our master Jesus Christ father
ya erire kuningye samanda yuze buru wane, erire tingka-
evil doer die want not be evil he did
fubakong bia bai erate yuze niking wane, enneng akomantobe.
by from turn want rather is alive to live.

Merunte tiribĕiya commandment nere ti dominirikong
strong gives he commandment and his ministers
bia karimetobe asatobe toya nere pemongong bia etiakamasa
to tell repeat them and his people near change

tana to erirekong bia bai to kuzaia irumakaning nere; inafe
while them evil near from them does he he forgives and indeed
wane tamonowere tiekamazang zammaning omatang bia
is all changed those pity dissemble near
bai wake timaimu emenukesa yafure tefonggong kuzaia erire
from good his word written believe those does he evil
bia bai merereyening aze nakong yairerong ti ekamantolong
near from that because come all right will change for
yenatobe ana ya ipe ana refatobia wake tikatong ke,
ask we to him we give he good his spirit with
ekongreze kufu ana ya serere iwakiribe; tikeng, wakebe ana
what anything do we now he glad pure good we
komantobe tere bai; ewetikesabe ana itobe tiwarire ataucimba
live here from finish we to come himself joy
gereta Jesus Christ ana epotoria yai.
among Jesus Christ we master through

ABSOLUTION

Almighty God, the Father of our Lord Jesus Christ, who desireth not the death of a sinner, but rather that he may turn from his wickedness, and live; and hath given power, and commandment, to his ministers, to declare and pronounce to his people, being penitent, the Absolution and Remission of their sins; he pardoneth and absolveth all those who truly repent, and unfeignedly believe his holy gospel. Wherefore let us beseech him, to grant us true repentance, and his Holy Spirit, that those things may please him, which we do at this present; and that the rest of our life hereafter may be pure, and holy; so that at last we may come to his eternal joy; through Jesus Christ our Lord.

MORNING PRAYER[1]

Erire waraio ya, erire tiwarere tingka fube bia bai
evil man evil himself the king does near from
eratesabe ipatabe ereye kufuia yairerong yawerong nere,
turn when in place of what (any) does he truth according and

---

[1] The English Prayer Book was used for text.

ennengbe itekatong poikatetobeia tiyakamate aminggebura
alive (be) his soul help will be change ye far not
ka pata wani yening.
heaven place is because.

Uwakiritonnong fuguru uyakonnong, wakemaing
my love very brothers good words
emenukasa tuke ipata pona ana yewanggong yarimaning
written many its place on we hearts move
eputobe karimetobe nere erireakong ana erirekong erire
to know ask and evils many we evils evil
tuwezinggong neri; tiomatai bura, to sonanzebura nere
habits of and jesting not them hide not and
kawũne ana yunggong tamonoware imeruntari God
high we father all strength God
yembata kaitcere;
face before
Karimetonggongbe to tize tũnombe tize nommairong tize,
to tell for them ought slow (state of) lowly (state of)
yuningbe yewanggong ke, yaiwũrong ke nere, tiwinare
hearing hearts with accord with and once
ana tirumakatatong patobe ana ya, tikomambe tiwezingwakũ
we things loosed find we long stop habits good
God yai wezanima yai neri. Konoro tũnombe ana erirekong
God through mercy through and always slow we evils
ana iwarerong fututobe ana ya God yembata kaitcere;
we ourselves of know we God face even
merere fuguru Kubai tize ana murukunte satane uwa
that very do ought we gather while thanks
tatoke irebatabe nere, okaipe irebasa yapijibe ana ya.
them with give will and large he gives (gave) receive we
iteiya wine fainong tonyebe make fuguru ikubutong titabe,
his hand side from far good very do for give
wake fuguru imaimu etatobe nere, ekongreze karamafoba
good very his word to hear and anything ask may
ituze wani kaitcere ana yesa tombe, ana yekatong tombe
want is even we body far we spirit far
nere. Merere yening yenawyn apegenakong, ayekaramafokong
and that because beg I ye all ye ask all
uyu nere, owaropo tare wanekong ure pokombe
me and how many here are me with

tikenang ayewanggong ke, tenombe amaimu ke nere
pure hearts with slow your word with and
kewene tinakong maka yaponope uwenaire augkute.
high mercy throw seat after me say

MORNING PRAYER

When the wicked man turneth away from his wickedness that he hath committed, and doeth that which is lawful and right, he shall save his soul alive.

Repent ye; for the Kingdom of Heaven is at hand.

Dearly beloved brethren, the Scripture moveth us in sundry places to acknowledge and confess our manifold sins and wickedness; and that we should not dissemble nor cloak them before the face of Almighty God our heavenly Father; but confess them with an humble, lowly, penitent and obedient heart; to the end that we may obtain forgiveness of the same by his infinite goodness and mercy. And although we ought at all times humbly to acknowledge our sins before God; yet ought we most chiefly so to do, when we assemble and meet together to render thanks for the great benefits that we have received at his hands, to set forth his most worthy praise, to hear his most holy word, and to ask those things which are requisite and necessary, as well for the body as the soul. Wherefore I pray and beseech you, as many as are here present, to accompany me with a pure heart and humble voice, unto the throne of the heavenly grace, saying after me;

TE DEUM LAUDAMUS

1. Ana expurema ape God; ayeputefoana mang amere
we praise thee God; acknowledge
ana epotori.
master

2. Tomonoware nong kaitcere tepurema zing amere;
all earth
yung tikomambere turvezing.
Father everlasting

3. Apu tamonoware Angels yamum karawana fomang
To thee all Angels
meruntatke; ka tamonoware meruntaking nere yawonggong.
heaven all powers are therein

4. Apu atinafomu pe fung erawanafomang; Cherubim
To thee Cherubim
Seraphim.
and Seraphim

5. Wakŭbe, wakŭbe, wakŭbe; seyananong epotori God.
Holy holy holy master God

6. Ka, nong nere enlafegurong ipuku fugufru; ayewo keke.
Heaven and earth are

7. Enwoke itakonnong Apostlic amu ya; epurema.
glorious company praise

8. Wake itambakong prophet yamu ya apŭ epurema.
good fellowship thee praise

9. Amporizang inonggong martyr yamu ya; apŭ epurema.
noble army praise

10. Wakŭ Church tomanowore pata kaitcare; ayefuning.
holy all world acknowledge

11. Yung; ipe kure buguru tuwezing awetikatong pefung.
Father

12. Amere tipoinamazing yairerong amu tiwinnangre.
thou son only

13. Waku itekatong neric; yafurenong.
holy (Ghost) also are comforter

14. Enwoke King; amere Christ.
glorious O

15. Amere tikomambere tuwezing; yung mumube.
thou everlasting father

16. Mere yai yanuma aya ya apona, waraio paikatetongbe: unewang maribŭ pefung emanong weneku.
man

17. Merere yai ikebe samandang yefoi epakabu; amere anetara pekabe ka pata, tamonoware yafurenang bia.

18. Amere God emainong iteiya po erentasa; yung enwakeya.

19. Ya purufu ana mangamere aipetong ana efuze.

20. Merere yening ana sena apu apaitoritonnong poikatafa; tomakasa aya yening pai kataning amunuke.

21. Toya ikubu ikuge amere motuwezanang pokombe; tikomambu (bere) tuwezing euwokeya.

22. Uyepatori apemongonno paikateke: wake antuke neri ana numutonggong pona.

23. To yendai eke; toyanungge nere tikomambere.

24. Weikaitcere, ana ya ayanuna fubomang.

25. Ana nere ekena ayesepe; tikomambere tuwezing pata ewetikatong perfung.

26. Uyepootori ana ya ayekramatobomang; ana kutobe anya serere weiyai erire bia bai.

27. Uyepotori, zanimake ana pona; zanimaka ana pona.

28. Wyepotori, tewe ewezanima iweyumake ana pona; embing aya ana weto pambe.

29. Wyepotori, embeng eto urea ya; tewe ure atakamatombe tuwezig pefung.

TE DEUM LAUDAMUS

1. We praise thee, O God; we acknowledge thee to be the Lord.

2. All the earth doth worship thee; the father everlasting.

3. To thee all Angels cry aloud; the Heavens, and all the powers therein.

4. To thee Cherubim, and Seraphim; continually do cry.

5. Holy, Holy, Holy, Lord God of Sabaoth;

6. Heaven and earth are full of the Majesty: of thy Glory.

7. The glorious company of the Apostles: praise thee.

8. The goodly fellowship of the Prophets: praise thee.

9. The noble army of Martyrs: praise thee.

10. The holy Church throughout all the world: doth acknowledge thee;

11. The father: of an infinite majesty;

12. Thine honorable, true: and only Son;

13. Also the Holy Ghost: the Comforter.

14. Thou art the King of Glory: O Christ.

15. Thou art the everlasting Son: of the Father.

16. When thou tookest upon thee to deliver man; thou didst not abhor the Virgin's womb.

17. When thou hadst overcome the sharpness of death; thou didst open the Kingdom of Heaven to all believers.

18. Thou sittest at the right hand of God: in the glory of the Father.

19. We believe that thou shalt come: to be our judge.

20. We therefore pray thee, help thy servants: whom thou hast redeemed with thy precious blood.

21. Make them to be numbered with thy saints: in glory everlasting.

22. O Lord, save thy people: and bless thine heritage.

23. Govern them: and lift them up forever.

24. Day by day: we magnify thee.

25. And we worship thy Name: ever, world without end.

26. Vouchsafe, O Lord: to keep us this day without sin.

27. O Lord, have mercy upon us: have mercy upon us.

28. O Lord, let thy mercy lighten upon us: as our trust is in thee.

29. O Lord, in thee have I trusted: let me never be confounded.

THE LORD'S PRAYER—Patore wane puremato

Ana yunggong kapo, wakebe ayese wanima apata
We father of us heaven good your name is your place
yenafomang. Ayuzeweto konikabe nong bo, kapo awane
to come You want to be made earth on sky on you are
kaitcere. Sereripe ana yekaritong antake ana bia eweyuyai.
evenness now is (to-day) we food for give we near daily
Ana erire irumakake ana pe ana yombakong erire erumaka
we sin loose thou we to we others sin loosed
ana ya pambe. Pakonomato gureta ana yengrakatobe
we like temptation among (in) we to lead
bura: erire wine bai niking ana inabŭkŭ. Ayamoni fe
not sin side from but we turn back yours is
pata, merunte, enwake, ewetikatong fefung, mowanire.
place strength glory (brightness) finish for is not amen

RESPONSES

1. Ana epitori, ana yepikong etarapukake.
we master we lips open
2. Ana muta nere ayepure matony yembotake.
we mouth and you praise for show
3. God kanebe fuguru ana paikateke.
God quickly very us help thou
4. Ana epotori, kanebe ana paikateke.
We master quickly us help thou

RESPONSES

1. O Lord, open thou our lips.
2. And our mouth shall show forth thy praise.
3. O God, make speed to save us.
4. O Lord, make haste to help us.

THE CONFESSION—Karimeketong

Merunte fugururu ezanimabe ana yunggung yawere bura ana mang, kabara pombe nere ana ataza ayemari bia bai. Yawere bura nere, ana yewang sena ming gambo many. Wake fuguru ayezeru mutanabe ana mang. Tewe ikubai tiza ewe ku fube, bura tiza irumakabe ana ya mang; ine ekubai buru tize merere kufube ana ya mang; merere yening puria bura ana ya mang. Erire fuguru ana wane, tize mapona zanimake ana epoton. Ana erire mokake ape karimeke ana ya tane. Erire kufube ana mang merere yening ana sewang konoma ana kurantanabutong anteke pemonggong bia tiri anya ta aya netakini pambe Jesus Christ ana epaton yai. Mekere yai nere ana irebake ana komantobe tarebai, wakebere, yairerong more nere, wakebe ayese euwake titabe abia ana zanimaning ana yungong.

The Confession

Almighty and most merciful Father; We have erred, and strayed from thy ways like lost sheep. We have followed too much the devices and desires of our own hearts. We have offended against thy holy laws. We have left undone those things which we ought to have done; And we have done those things which we ought not to have done; And there is no health in us. But, thou, O Lord, have mercy upon us, miserable offenders. Spare thou them, O God, which confess their faults. Restore thou them that are penitent; According to thy promises declared unto mankind in Christ Jesus our Lord. And grant, O most merciful Father, for his sake; That we may hereafter live a godly, righteous, and sober life, to the glory of thy holy Name.

Gloria—Enwake wane

Enwake itung bia wane | imu | nere: wake i|teka|tong| neri. Ipatebe wanebe, serere wane, komana | tombe | nere pata ewetika|tong pe|fung a|men. Patori wani kufutong wakŭbe antŭte. Palori wani ese ekufu wakŭbe.

Venite

1. Acite, tewe serengngantobenakong ana epatori pe; tewe ana yewang taucimba ana poikata|ning me|runte | pe.

2. Tewe ana ipe etembata kaitcere, uwa tatake irebatobe. Ana wakiri yembatobe ana ya nere ipe Psalms ke.

3. Ana epotori wane yening, epeku God pe, epeku kingbe nere, tamonowarong God yamu ebainong.

4. Tamonowrongnong epiforonggong ite iya yawonggong; muturukong meruntakong iwarerong nere.

5. Parana iwarerong, ingkafube neri: amunenong konikabeia nere iteiya kongke.

6. Acite, tewe tesenunze nere, puremanto benakong: tize muyupe nere ana kuning ye, ana epatori yemba to Kaitcere.

7. Mekerere ana epatori ana God pe: ana kanante ipemonggono ipata po, ka bara nere iteiya winong.

8. Sererepe unaimu etaza anya nakong ya, awewonggong samanaze bura; amatabe tane, pakonomabe yai nere iteipona pambe.

9. Ayung tonnonggong ya upako nomabe; wye futube toya useiya kamakong eramabe to ya nere.

10. Asagony pemonggong tumong kusambe, serire munggeci ya, wyewang konoma bŭ tabowai; serere pemonggong yewang ya yawe. Re bura senaming gambomang, wyeruru tize efututoya bura wane.

11. Tope ukoroimafe, umaimu soro | kabe|uya: uyengguyu gureta, to ewomu | sereke | bura | mang.

VENITE

1. O come, let us sing unto the Lord: let us heartily rejoice in the strength of our salvation.

2. Let us come before his presence with thanksgiving: and show ourselves glad in him with psalms.

5. For the Lord is a great God: and a great King above all gods.

4. In his hand are all the corners of the earth; and the strength of the hills is his also.

5. The sea is his, and he made it: and his hands prepared the dry land.

6. O come, let us worship and fall down: and kneel before the Lord our Maker.

7. For he is the Lord our God, and we are the people of his pasture, and the sheep of his hand.

8. To-day, if ye will hear his voice, harden not your hearts; as in the provocation, and as in the day of the temptation in the wilderness:

9. When your fathers tempted me: proved me: and saw my works.

10. Forty years long was I grieved with this generation, and said: It is a people that do err in their hearts, for they have not known my ways.

11. Unto whom I sware in my wrath: that they should not enter into my rest.

Glory be to the Father, and to the Son: and to the Holy Ghost; as it was in the beginning, is now, and ever shall be, world without end. Amen.

VOCABULARY

English—Macusi

about	pe
absolution	iramakato
accord	yaiwŭrong
according	yawerong
after	naire
again	ineri
aguti	akuri
alive	enneng
all	timinaure
alligator	kuratu
all varieties	tukangong
all ye	apegenakong
already	inanibe
always	konoro
amen	mowanire
among	gereta
among you	guretanakong
anaconda	u.i
and	nere
answer	ukuya
ant	mika
anus	ubipa
anything	ekongreze
apron	moka
are you	manang, awane
arise	awomutong
arm	uyemeku
arm band	yapotari
arrow	peru
arrow, poison	urali
arrow, poisoned	kunua
ask	karimetobe, yenai
ask all	ayekaramafokong
ask, may	karamafoba
aunt	mamai
awake	ennemang

baby, baby carrier	wini
back	umpo
bad	ĕribĕ
banana	paruru
bark	seura
basket	tcumba, kawapa
basket made of reeds	muma
be	iwuza, etobe
beard	uyeko
because	yening
before	rape
began	biatebĕ
beg	yenauya
behind	pendanarenota
being	betiza
believe	yafure
believe, I	yapurefowai
believed, I	yafurubĕ
believed, he	yafurubuina
believers	purenoaggong
belly	ulota
better	wakubĕfumbĕ
best	wakubĕfumbĕru
bird	paricari
black	pawai
blind	tenaban
blood	mong
blow gun	kura
blue	engatung
blue, sky	urikutung
body	teza
book	tambita
born	yempobĕ
bow	uyurapai
bowstring	karia
bread, masticated	yaposa
breath	itĕtecĭng
breast	mana
brother	upi
brother	mori
brother, elder	entcĕkĕrang

brother in law	yakuru, yaku
brother, little	anikĕ
brothers	uyakonnong
brown	carapĭyu
build	ima.ukauya
buried	yunatebĕ
burn	aranabua
but	sete, tĭze
buttock	umaka

calabash	aihi
came	ipupĕ
came he	aipetong
canoe bark	kanaua
canoe, dugout	kulial
capabara	warui
carrying basket	daruana
cassava	kitcire
catch you	pijayanakong
cat's cradle	leokadio
change	etiakămasa
changed those	tiekamazang
cheek	upita
chest	uprota
chest	ukadumba
child	mure
chin	uyĕtămu
cigarette	seura
circle	kaz
circle	wĭng
cloud	katurufu
cloud	turupu
cold	kome
cold	kumike
color	emenu
come	yenafomang, wipu, aze
come, to	ipu
coming	maikong
compassion	wezanima
cool	enuking
corn	anai

cousin	ewurci
cow	paca
creator	entcekerang
creek	iwŭita
curasow	powis
custom	yeruru

daily	eweyuyai
dance (*v.*)	uariban
dance	warepang
dance, society	paucas
dark	awanung
daughter	uyĕnge
daughter (mother's)	unrĕ
daughter in law	patse
dawn	erĕmapuya
day	renai
daytime	iweyuyai
dead	katumba
dead, the	samăndazang
deaf	panaban
death, his	tisamăndabe
deep	tunewong
deer	waikĭng
descend	antebe
devil dance	emawari
did	nikubube
die, to	samănda
dig	yakauya
dirty	aiku
dissemble	omatang
distant	amĭnge
do	kufu
doer	kunĭngye
dog	arimaraka
dog, hunting	pukung
door	manata
door	pĕndanare
dove	akuka
down (*n.*)	toko
down	makwita

drink (*n.*)	anim
drink (*v.*)	yĕnĕreuya
drink, black	paiwai
drink, cassava	yaposa
drum	sambura
dry	konobin

ear	upana
ear lobe	upananta
earth	pata
east	weipakawaina
eat	entamakan
eight	seremŭmiabŭnatimotai
elbow	uzemu
even	kaitcĕre
evenness	kaitcere
evil	erire
evil genius	kĕnaima
evil one	emiwary
evils	erirekong
except	nikĭng
eye	uyenu
eyebrow	uyenutcipu
eyelash	uyenusipo

face	yenibata
fall	ena
fall (*v.*)	enakŭfu
far	tombe
fat	kiwang
father	yung
father of us	yunggong
fear	apowai
feces	uwa
female	uribemang
fever	ekomĭma
field	upi
find	patobe
finger	mia
finger nail	ungatcapipe
finish	ewetikesabe

finish	ewetikatong
fire	apo
fire	apu
firewood	apo
fish	moro
fish net	kami
fish, pirai	arai
fish poison	aiya
fish poison, bark of vine	kowui
fish poison, bush rope	pici
fish poison, shrub	tcukuya
fish poison, shrub	kunapari
fish poison, shrub	kunani
fish trap	waita
five	miatoikĭng
flesh	upuni
floor	kawumbăng
flow	aparu
flute, bamboo	kaikara
flute, jaguar bone	atcinari
fly, pium	nunka
follow	wenaire
food	yekaritŏng
foot	upu
for	matony
forehead	pĭng
forest	yu
forever	inepari
forget	tiwamura
forgive	ikubutŏngtitabe
found	poribe
four	săkrebŭna
fowl	kariwinake
fox	makong
frog	puretku
from	bai
future	kĕuteseti

game	kamo
game, forest	aka
gather	murukunte

get in we	ewonze
get up	ewemuzakabe
girl, growing	tăngsa
give	anike
give	antikei
glad he	iwakiribe
glory	ĕnwake
go	utĕ
going	atĕ
good	makĕ
good, the	wakube
gourd rattle	mara
grandchild	up̀a
grandmother	ʼkoko
great, the	ipĕkure
great	ipĕku
great rock	pirakaira
great tree	waiyakaiye
green	sora
ground	pata
habit	tiwezing
hair	usipo
hammock	auta
hand	teya
hat	aró
hat	tarako
have	ubia
he	iya
head	upapai
head band of cotton	aro
head man	imo
heal	puripan
health	upuribomube
hear	etatobe
hearing	yunĭngbe
heart	yewang
heaven	kapo
heavy	amuninĕ
heel	utana
help	poikate
her	ibia

here	tare
hide	sonanze
high	kowuni
hill	muteru
him	ipe
himself	tiwarire
hip	utci
his	ti
holy	wake
hope	ĕmbĕng
horizon	kaz
horse	kaware
hot	anibe
house	ute
house, your	ayeyiwu
how	aonong
humming bird	tukui
hung	arifube
hungry	iwangbe
I	ure
if	ya
ill treatment	tarimatĕng
images	ikuzakŏng
in	ta
indeed	inafe
in front of	kaitcĕre
in place of	ipalabe
iron	tcipirari
is	wane
island	yano
it	mererĕ
jaguar	kaikuci
jester	anikĕ
jesting	tiomatai
joy	taucimba
judge	yefuzu
kill	iweuya
killed	iwabu
knee	uzenm

knew	nifutube
knife	taura
know	futu

large	okaipe
lead	yengrakatobe
leaf	hari
leaves for medicine man	tcipuyeyare
leg	uyĕmata
leg band	sabra
light	a'akare
light weight	laku
like	yeka, pambe
lips	yepikong
little	cimerika
live	ukamamu
living	ennemang
living thing	yamu
lizard	iwo
long	amĭnge
long time	kosang
look	eramuya
loose	irumakake
loosen	rumaka
louse	arŏng
loves, he	yapurubu
love	wakiriton
lowly	nommairong

macaw	kararawa
made, he	kufubuia
male	waraiyole
man	waraiyo
manner	yeruru
many	tuke
masculine	waraiyo
master	epotori
me	uri
medicine man	piai
medicine, of seeds	puá
medicine, stomach	kamara

medicine, worm	ronai
men	waraiokŏng
mention	ayesabote
mercy	tĭnakŏng
message	ekare
mindful	ĕmbĕng
mine	uremurĕrĕr
ministers	domĭnirikŏng
monkey, black	witire
monkey, howling	arata
moon	kapoi
morning	penane
mother	ucang
mother	mamai
mother in law	wana
mother of children	murĕyamais'sang
mother of daughters	wuriyang
mother of sons	waraiyorang
more than	yĕndai
mountain	tĕrkapĭng
mouse	moa
mouth	muta
mouth	unda
move	yarima
much	tuke
my	u

name	ayese
name of chief	tebĕrŭ
navel	uponi
near	bia
neck	ume
necklace	akulye
necklace of beads	wawi
necklace of seeds	cilicili
necklace of teeth	momo
nephew	umuri
nephew, to marry	wanafu
night	repatabu
night	awarunya
nine	săkrebŭnamiabŭnatimotai

nipple	umanate
no	karnĕ
nose	uyuna
nose string	kusa
not	okai
not	bura
now	serere
now	arawai

of	yung
old	akiton
old man	aketon
old woman	nusandŏng
on	pona
on all fours	waineribu
once	tiwinare
one	tiwĭng
one side	toikĭng
only	nikĭng
open	etarapukake
other	ratwi
ought	tize
ours	anamuere
ourselves	uwarerŏng

paca	urana
paint	imĕnikouya
pale white	amutung
palm	patcangera
parrakeet	titike
parrot	woroke
past	bu
path	ayemari
peace	more
penis	umele
people	pŏng
peppers	pimi
person	pemongŏng
persons	we
pink	waiaiya
pity	zanimanĭng

place	apata
place name	kazawĭng
please	uwakĕrebe
pluck	pika
plural	futi, yamu
potato	sa
praise	ayepure
pray	epurema
present	mang
present time	nafomăng
pure	tikeng
purple	epopiyu
put	timotai
quickly	kanebe
quiet	mo
quiver	mĕye
rain	kono
rainbow	nŏng
rib	urata
river	yauna
rabbit	akuri
rain	kono
raised, he	inimuzakabi
rather	nikĭng
rattle, ground	mara
rattle, nut	kiwi
rattle of seeds	tuwi
receive	yapijibe
record string	wekui
red	cuiyu
repeat	asatobe
right	yairerŏng
river	okaituna
roof	nekata
root	jari
rough	arairabŭtafe
run	katĭmreure

said	tabe
sake	wenai
salve	katama
same	rema
sand	ska
sandal	pucaza
sandbar	skapon
say	kaku
saw	yamu eramabu
scrotum	uyimu
season, dry	weiyai
season, wet	konoyai
seat	yaponope
second person	ku
see	rama
seek	yenai, karimelobe
servants	ipaitori
serve	tamitobe
seven	săgonymiabŭnatimotai
shadow	ina
she	mukera
shoot	iweuya
shoulder	umota
show	yembotake
sick	parangbe, yenebĕ
side	wine
sign	panebĕ
singular	manang, formang
sister	wiri, uwutisi
sit	erata
sits	rentesa
six	tiwingmiabŭnatimotai
skin	upipo
skull	papairupa
sky	ka
sleep	uwetungserere, wetung
slow	tŭnombe
smoke	werito
so	mo
son	umu
son in law	paito

soul	tekatong
sound	etunge
speaking	sewumatatǒng
spider's web	moroi
spindle whorl	pleri
spirit	katǒng, makui
spirit, evil	kenaima
spread	atawenǒnggasa
spring	yani
star, large	kaiwuno
star, small	cirika
state of being	mang
stingray	tcipari
stone	ter, terka
stoop	timui
stop	tikomambe
storm	waranapi
strength	merunte
string figure	aratawaii
strong	merunte
sun	wei
sun at 45°	yawempona
sun overhead	enakatapairĕ
sunrise	penăna
sun setting	ewumo

tapir	weira
tell	karame
temptation	pakonomato
ten	miatiminauria
termites	muna
thanks	uwa
that	muerer
their	moro
theirs	injenangyemanemurerer
them	to
themselves	tiwarirenakǒng
these	senikǒng
they	toya
thing	tǐngka
things	tiruma

third	teseremuwana
this	seni
thorn	tuku
those	muerekŏng
those, remote	tcĕnikŏng
three	seremŭ
throat	tore
through	yai
throw	maka
time	yai
to	pe, bia
tobacco	kawai
today	sereripe
toe	itcepepalu
tongue	unu
took	imokazang
tooth	uye
treat	tarimatebe
tree	yeye
true, truth	yairerŏng
turn	erate
twenty	tiwĭngpermonogŏng
twilight	patabŭ
two	săgonĭ
uncle	papai
under	yon
up	ikanima
urine	uzu
vagina	umone
venus	kaiwona
very	fuguru
view	yaire
village	eute
virgin	amanŏng
vulture	watu
wait	nemetobu
walk	asareure
want	yuse, fai

was	wanabe
water	tuna
way	yeruru
way	ema
we	ana
went	alebe
west	weiwomuwina
what	ereye
when	be
where	anŏngpata
which	onŏng, onongze
while	tane
while	aimotung
who	anĕ
why	onŏngbe
wife	onobu
will be	tobeia
wind	simang
with	ke
without	kong
woman	urisang, uri
wonder	tabăngke
word	maimu
work	eseiyakama
world	nong
worse	eribĕfumbĕ
worst	eribĕfumibĕru
wrath	sakaro
wrist	jenawekada
written	emenukesa
yellow	kosaimatung
yes	ina
yesterday	komombura
you	aiyamove, amura
you (*pl.*)	manatai
young	manong
your	aiyamoro
yours	ayamoni

Macusi—English

a'akare	light
aihi	calabash
aiku	dirty
aimotung	white
aiya	fish poison
aiyamore	you
aiyamoro	your
aka	game
aketon	old man
akiton	old
akuka	dove
akulye	necklace
akuri	aguti
alebe	went
amanŏng	virgin
amĭnge	long
amuinĕ	heavy
amura	you
amutung	pale white
ana	we
anai	corn
anamuere	ours
anĕ	who
anibe	hot
anike	give
anikĕ	little brother, jester
anim (*n.*)	drink
amĭnge	distant
anŏngpata	where
antebe	descend
antikei	give (*imp.*)
aparu	flow
apata	place
apegenakong	all ye
apo	firewood
apowai	fear
apu	fire
arai	fish, pirai
arairabŭtafe	rough

aranabua	burn
arata	monkey, howling
aratawaii	string figure
arawai	now
arifube	hung
arimaraka	dog
aro	head band, cotton
aró	hat
arŏng	louse
asareure	walk
asatobe	repeat
atawenŏnggasa	spread
atcinari	flute, jaguar bone
atĕ	going
auta	hammock
awane	are, you
awanung	dark
awarunya	night
awomutong	arise
ayamoni	yours
ayekaramafokong	ask all
ayeṃari	path
ayepure	praise
ayesabote	mention
ayese	name
ayeyiwu	house, your

bai	want
be	when
betiza	being
bia	near to
biatebe	began, it
bu	past
bura	not

carapiyu	brown
carapĭyu	brown
cilicili	seed necklace
cimerika	little
cirika	star, small
cuiya	red

cimerika	little
cirika	star, small
cuiyu	red

daruana	carrying basket
domĭnirikŏng	ministers

ekómĭna	fever
ekongreze	anything
ema	way
emawari	devil dance
ĕmbĕng	mindful, hope
emenu	color
emenukesa	written
emiwary	evil one
ena	fall
enakatapairĕ	sun overhead
enakŭfu (*v.*)	fall
angatung	blue
ennemang	living, alive
entamakan	eat
entcĕkĕramg	older brother, creator
enuking	coal
ĕnwake	glory
epopiyu	purple
epotori	master
epurema	pray
eramuya	look
erata	sit
erate	turn
eremapuya	dawn
ereye	what
ĕribĕ	bad
ĕribĕfumbĕ	worse
ĕribĕfumbĕru	worst
erire	evil
erirekong	evils
eseiyakama	work
etarapukake	open
etatobe	hear
eitakamasa	change

etobe	be
etunge	sound
eturumukabe	loosened
eute	village
ewemuzakabe	get up
ewetikatong	finish
ewetikesabe	finish
eweyuyai	daily
ewonze	get
ewumo	setting sun
ewurci	cousin

fe	is
formang	singular
fuguru	very
futi	plural
futu	know

gereta	among
guretanakong	among you

hari	leaf

ibia	her
ikanima	up
ikubutŏngtitabe	forgive
ikuzakŏng	images
imaukauya	build
imĕnikouya	paint
imo	head man
imokazang	took
ina	yes
ina	shadow
inafe	indeed
inanibe	already
inepari	forever
ineri	again
inimuzakabe	raised, he
injenangyemanemurerer	theirs
ipaitori	servants
ipalabe	in place of

ipe	him
ipĕku	great
ipĕkure	the great
ipu	come, to
ipupĕ	came
iramakato	absolution
irumaka	loosen
irumakake	loose
itcepepaln	toe
itĕtecĭng	breath
iwabu	killed
iwakiribe	glad he is
iwangbe	hungry
iwarerŏng	ourselves
iweuya	kill, shoot
iweyuyai	daytime
iwo	lizard
iwŭita	creek
iwuza	be
iya	he
jari	root
jenawikada	wrist
ka	sky
kaikara	flute, bamboo
kaikuci	jaguar
kaitcĕre	in front
kaitcere	even. evenness
kaiwona	venus
kaiwuno	star, large
kaku	say
kamara	medicine, stomach
kami	fish net
kamo	game
kanaua	canoe
kanebe	quickly
kapo	heaven
kapoi	moon
karamafoba	ask, may
karame	tell

kararawa	macaw
karia	bowstring
karimetobe	seek
kariwinake	fowl
karnĕ	no
kartama	salve
kasamifu'uya	ask
katama	salve
katĭmreure	run
katŏng	spirit
katumba	dead
katurufu	cloud
kawai	tobacco
kawapa	basket
kaware	horse
kawumbăng	floor
kaz	horizon, circle
kazawĭng	place name
ke	with
kenaima	spirit, evil
kĕuteseti	future
kitcire	cassava
kiwang	fat
kiwi	nut rattle
koko	grandmother
komombura	yesterday
kone	cold
kong	without
kono	rain
konobin	dry
konoro	always
konoyai	season, wet
kosaimatung	yellow
kosang	long, time
kowui	fish poison, bark of vine
kowuni	high
ku	second person
kufu	second person
kufubina	made, he
kufuia	does he
kulial	canoe, dugout

kumara	medicine for bowels
kumike	cold
kunani	fish poison
kunapari	fish poison, shrub
kuningye	doer
kunua	arrow, poisoned
kura	blow gun
kuratu	alligator
kusa	nose string

laku	light weight
leokadio	cat's cradle

maikong	coming
maimu	word
maka	throw
makĕ	good
makong	fox
makui	spirit
makwita	down
mamai	mother, aunt
mana	breast
manang	singular
manang	are you
manata	door
manati	you
mang	is, present, state of being
manong	young
mara	gourd rattle
matony	for
merere	it
merunte	strong
mĕye	quiver
mia	finger
miatiminauria	ten
miatoikĭng	five
mika	ant
mo	so
mo	quiet
moa	mouse
moka	apron

momo	necklace of teeth
mong	blood
more	peace
mori	brother
moro	their
moro	fish
moroi	spider's web
mowanire	amen
muerer	that
muerekŏng	those
mukera	she
muma	reed basket
muna	termites
mure	child
murĕyamais'sang	mother of children
murukunte	gather
muta	month
muteru	hill

nafomăng	present time
naire	after
nekata	roof
nemetobu	wait
nere	and
nifutube	knew
nikĭng	rather
niking	only, except
nikubube	did
nommairong	lowly
nong	world
nŏng	rainbow
nota	behind
numka	fly, pium
nusandŏng	old woman

okai	not
okaipe	large
okaituna	river
omatang	dissemble
onobu	wife
onong	how

onŏng	which
onŏngbe	why
onongze	which
otcinari	flute, bone

paca	cow
pairakaira	great rock
paito	son in law
paiwai	drink, black
pakonomato	temptation
pambe	like
panaban	deaf
panebĕ	sign
papai	uncle
papairupa	skull
parangbe	sick
paricari	bird with red head
paruru	banana
pata	ground, earth
patabŭ	twilight
patcangera	palm
patobe	find
patse	daughter in law
paucas	dance society
pawai	black
pe	to, about
pemongŏng	person
penăna	sunrise
penane	morning
pendanare	door
pendanarenota	behind the door
peru	arrow
piai	medicine man
pici	fish poison, flat bush rope
pijayanakong	catch you
pika	pluck
pimi	peppers
pĭng	forehead
pirakaira	great rock
plari	spindle whorl
poikate	help

pona	on
pŏng	people
poribe	found
powis	curasow
puá	medicine, of seeds
pucaza	sandal
puiroi	seed dance rattle
pukung	dog, hunting
purenoag'gong	believers
puretku	frog
puripan	heal

rama	see
rape	before
ratwi	other
rema	same
renai	day
rentesa	sits
repatabu	night
ronai	medicine, worm

sa	potato
sabro	leg band
săgonĭ	two
săgonĭmiabŭnatimotai	seven
sakoro	wrath
săkrebŭna	four
săkrebŭnamiabunatimotai	nine
samănda	die, to
samăndazang	dead, the
sambura	drum
seni	this
senikŏng	these
seremŭ	three
seremŭmiabunatimotai	eight
serere	now
sereripe	today
sete	but
seura	bark
sewumatotŏng	speaking
simang	wind

ska	sand
skapon	sandbar
sonanze	hide
sora	green

ta	in
tabăngke	wonder
tabe	said
tambita	book
tamonowore	all
tane	while
tăngsa	girl, growing
tanutobe	serve
tarako	hat
tare	here
tarimatebe	treat
tarimatĕng	ill treatment
taucimba	joy
taura	knife
tcĕnikŏng	those, remote
tcipari	stingray
tcipirari	iron
tcipuyeyare	medicine man's leaves
tcukuya	fish poison, shrub
tcumba	basket
tebĕrŭ	name of chief
tekatong	soul
tenaban	blind
ter	stone
terka	rock
terkapĭng	mountain
teseremuwana	third
teya	hand
teza	body
ti	his
tiekamazang	changed those
tikeng	pure
tikomambe	stop
timotai	put
timinaure	all
timui	stoop

timakŏng	mercy
tĭngka	thing
tiomatai	jesting
tiriki	parrakeet
tiruma	things
tisamăndabe	death, his
tiwamura	forget
tiwarire	himself
tiwarirenakŏng	themselves
tiwezing	habit
tiwinare	once
tiwĭng	one
tiwĭngmiabŭnatimotai	six
tiwĭngpemongŏng	twenty
tize	ought
to	them
tobeia	will be
toikĭng	one side
toko	down
tombe	far
tore	threat
toya	them, they
tukangŏng	all varieties
tuke	many, much
tuku	thorn
tukui	humming bird
tuna	water
tunewŏng	deep
tŭnombe	slow
turupu	cloud
tuwi	rattle of seeds

u	my
uariban	dance
ubia	have
ubipa	anus
ucang	mother
ui	anaconda
ukadumba	chest
ukamamu	live
ukuya	answer

ulota	belly
umaka	buttock
umanate	nipple
ume	neck
umele	penis
umone	vagina
umota	shoulder
umpo	back
umu	son
umuri	nephew
unda	mouth
ungatcapipe	fingernail
unrĕ	daughter, mothers
unu	tongue
upa	grandchild
upana	ear
upananta	ear lobe
upapai	head
upi	brother
upĭ	field
upipo	skin
upita	cheek
uponi	navel
uprota	chest
upu	foot
upuni	flesh
upuribomube	health
urali	arrow poison
urana	paca
urata	ribs
ure	1
uremurĕrĕr	mine
uri	woman
urĭ	me
uribemang	female
urikutung	blue, sky
urisang	woman
usipo	hair
utana	heel
utci	hip
ute	house

utĕ	go
uwa	feces
uwá	thanks
uwakĕrebe	please
uwetungserere	sleep
uwutisi	sister
uyakin'nŏng	brothers
uye	tooth
uyĕko	beard
uyĕmata	leg
uyĕmeku	arm
uyĕnge	daughter
uyĕnu	eye
uyĕnusipo	eye lash
uyĕnutcipu	eyebrow
uyĕtămu	chin
uyimu	scrotum
uyuna	nose
uyurapai	bow
uzemu	elbow
uzemŭ	knee
uzu	urine

waiaiya	pink
waikĭng	deer
waineribu	all fours
waita	fish trap
waiyakaiye	great tree of life
wake	holy
wakiriton	love
wakubĕ	good
wakubĕfumbĕ	better
wakubĕfumbĕru	best
wana	mother in law
wanafu	nephew, to marry
wane	is
wanube	was
waraiokŏng	men
waraiya	masculine
waranapi	storm
warepang	dance

wariyo	man
wariyobe	male
wariyorang	mother of sons
watu	vulture
warui	capabara
wawi	bead necklace
we	persons
wei	sun
weipakawina	east
weira	tapir
weiwomuwina	west
weiyai	season, dry
wekui	record string
wenai	sake
wenaire	follow, we
werito	smoke
wetung	sleep
wezanima	compassion
wine	side
wini	baby, baby carrier
wipŭ	come
wiri	sister
witiri	black monkey
woroke	parrot
wuriyang	mother of daughter

ya	if
yafure	believe
yafurubĕ	believed
yafurubuia	believed
yai	time
yai	through
yaire	view
yairerŏng	right, truth
yaiwŭrŏng	accord
yakauya	dig
yakuru	brother in law
yamu	plural
yamŭ	living thing
yamu eramabu	saw
yani	spring

yano	island
yapijibe	receive
yaponope	seat
yaposa	masticate, bread, drink
yapurefowai	believe
yapurubŭ	loves he
yarima	move
yauna	river
yawempona	sun at 45°
yawerŏng	according
yefuzu	to judge
yeka	like
yekaritŏng	food
yembata	face
yembotake	show
yempobĕ	born
yenafomang	come
yenai	seek
yenauya	beg
yendai	more than
yenebe	sick
yenĕreuya (*v.*)	drink
yening	because
yenrakatobe (*v.*)	lead
yepikŏng	lips
yepotari	bracelet
yeruru	custom, manner
yewang	heart
yeye	tree
yon	under
yu	forest
yumatebĕ	buried
yunĭngbe	hearing
yung	father
yung	of
yunggŏng	father of us
yuse	want
zanimanĭng	pity

WAIWAIS[1]

The Waiwais were first seen by Schomburgk[2] on December 15, 1837, while on his journey to the sources of the Essiquibo. He visited three of their villages, one sixteen miles from the Essiquibo and the others across the Acarai Mountains to the south and west. They were next seen in 1884 by Coudreau,[3] who passed through their western village on his hasty trip through the virgin forests. Neither of these travellers gives us much information about the people or their culture. One says they were "filthy dirty," and the other "une belle race." Our first information of real value concerning the tribe came from John Ogilvie who visited two villages in 1910 for the purpose of making photographs and ethnological collections for Harvard University. It was his collection that inspired our Museum expedition to undertake a journey under his guidance to the Waiwai country at the end of 1913.[4] The map at the close of this volume will show the route of travel and the location of Waiwai and other villages.

Our party left Dada Nawa, Melville's home on the Rupununi, November 19th, and carried across to the landing on the Cuduwini where we took canoes for the Taruma country on the Essiquibo.

At the second Taruma village we fell in with Kiwinik, the Waiwai chief from Wakakulud on the Kamacoko, or Blood Creek, an eastern branch of the Essiquibo some three or four days up river. The chief was making a new field and had come down to the Tarumas to get cassava cuttings to plant. One of his three wives (see Plate XII, H), was the daughter of the Taruma chief, and hence the two tribes were very friendly. We told him of our plan to visit his people and the villages east of the Acarai Mountains and asked him to go with us and furnish some men. He was quite willing to go, but his field was cleared and the cuttings were ready and must be planted at once or they would spoil. We offered to help with the planting. As there were already fifteen Indians in our party and five Tarumas would join him if he would go, he immediately agreed to the plan. They loaded the cassava cuttings in two Taruma canoes, the chief and his youngest wife took passage with us in our large canoe, and we set out.

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[1] Woyawai, Ouayeoue.

[2] J. R. Geog. Sec., Vol. VI, p. 11.

[3] Etudes sur les Guayanes et l'Amazonie, Vol. 2, p. 278.

[4] For account of journey see Bull. Geog. Soc. of Phila., Vol. XV, No. 2, 1917.

When we arrived at Kiwinik's village we found one temporary house and two small shelters occupied by three men, four women and a boy of ten or twelve years. The chief had cleared some three acres with his own hands and we could appreciate what it meant to him for twenty four men to join together in the planting. The women carried the cuttings to the field and distributed them, while the men dug up the hills with sharp sticks and planted the cassava. The greater part of the field was planted in cassava, the poisonous variety, as the interior tribes have no sweet cassava. Corn was planted along the sides of the logs; ten or a dozen pineapples were planted together where there had been a big fire; yams were scattered here and there, two or four hills together, with poles for the vines to climb (other tribes allow vines to cover the ground); some sugar cane was planted in the lowest ground, and a few plantain and banana trees scattered about in the blackest soil. There were three varieties of bananas; a red one, a yellow one with yellow inside and a yellow one with white inside. The second is a worthless kind of thing, always has a wilted appearance, and the skin is never plump and full.

By three o'clock the first day the work was done and we moved up stream about six miles, where we prepared to leave the river for the long walk over the mountains. The next morning, Saturday, December 20th, was very cold; many of the boys built fires under their hammocks. The temperature of the air was 68° and that of the water in the small creek 71°. The forenoon was spent in making carrying baskets and at noon we started on a poorly marked trail leading up the valley of the Kamacoko toward the south. Monday at nine found us on the summit of Mount Harrison, the highest point in the Acarai range which marks the divide between the waters of the Essiquibo and the Amazon, at an elevation of 1600 feet. We turned eastward and in an hour reached the Yaiimu, one of the head streams of the Trombetas River. Continuing we crossed several mountains from 1000 to 1500 feet high; forded the Howrokoa (Caterpillar), the Kunuu (sun) and many smaller streams and at five o'clock on December 23d we arrived at Malitili on the bank of the Kafaiyaua or Armadilla River. The distance from the Essiquibo was about sixty miles as we traveled.

The village is called Iñago by the Tarumas, and Koropatinauaua by the Wapisianas, meaning rising or high ground; literally, an ant hill in the elbow of the river, which really gives the best idea of the location. The village, consisting of one conical house and six small square houses without walls built in a group on the high bank, was flanked by a cleared field of eight or ten acres, about half planted in cassava and the rest being prepared for planting. This was the ideal place for cassava, which grows best on high land in clay soil rather than in the black land of the river bottom. There were other fields at some distance from the village where bananas, papayas and cashews were growing. New fields were being made because several Parukutus had recently come to join the Waiwais in the village. It was necessary for our men to stay for a few days to rest before returning. We had had thirty four days of continuous hard labor, and I am glad to say that not one of us had been sick or disabled during the whole journey. We were a large party to drop upon any village to be fed; fifteen Wapisianas, five Tarumas, four visiting Waiwais and four whites. Fortunately a drove of wild peccaries came near the house the second day and our men killed seven of them.

We were anxious to have messengers go to the Mapidians, four days' journey away, and invite them to come to see us. The chief took one man and made the journey for us, but upon the condition that we work in the field while he was gone. So whites and Indians worked for our chief and for our daily bread for a week.

When we reached the village, our Waiwai chief guide and another Waiwai went in advance of the pack train, and, when near enough to hear the voices of the people at the village, the chief gave a loud yell to announce our coming. Proper custom requires one on entering or leaving a village to blow a flute but we had no flutes in our party. Some of the Indians were in the fields, others were hunting, but all turned up soon and all showed a little surprise at seeing such a large party of strangers. It was the first time that white men had ever visited this village. Ogilvie had visited the old village a short distance away, and many of the people present had seen him, but never before had they seen so many men at one time. They at once did the customary thing—brought stools (Plate XXXVI) for the whites and the visiting chief. When we sat down, the boys with their packs sat down on logs or on the ground. All the men and boys of the village came and sat or stood near. There was no noise, confusion or excitement. Our visiting chief told the chief of the village all he knew about us, who we were, where we came from, where we were going and what our desires were. The chief asked him many questions, and when he was satisfied he went to the door of his house where all the women had gathered with his two wives and told them all that he had learned about us. So far no one had spoken except the two chiefs. Apparently everything was quite satisfactory, and now the men began to talk among themselves and with our men. Very soon the women brought out four large bowls of drink, each containing about six quarts and set them on the ground near the chief. When all were ready the chief took up the bowls one after another and gave them to our chief and he passed them on to us and to our men, holding the bowl while we drank. After we had rested and refreshed ourselves for a half-hour or more the chief sent his men along with ours to clear a camping place for us across the river in front of the village.

Waiwai women make the best cassava graters in the whole region, and their graters are used even among the Wapisianas and Macusis of the savannah. A board about 2½ feet long and 1 foot wide is cut from the broad root of the *Aspidospermum excelsum,* allowed to cure well and one side set with small angular pieces of porphyry. The board is first laid out by drawing lines around the quadrangle the desired size and then across one diagonal filling up the angles with parallel lines a quarter of an inch apart. Small holes are then made with the sharp point of a bone awl and the bits of stone driven in. One end is finished half way and the board turned for the other half, thus finishing in the middle. The whole surface is now covered with pitch to secure the stone and to fill the pores of the wood. Grater making constitutes a real industry among these people.

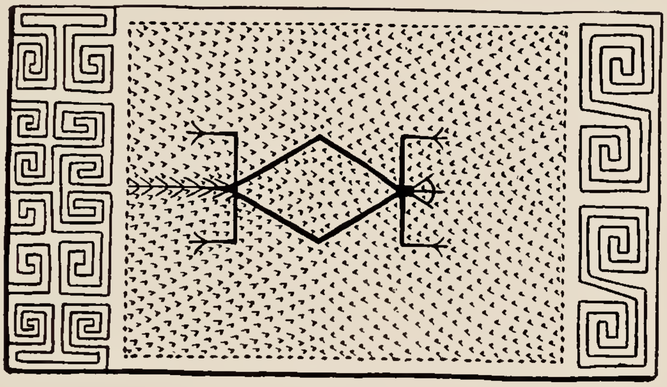


Fig. 6.—Cassava Grater. Waiwai

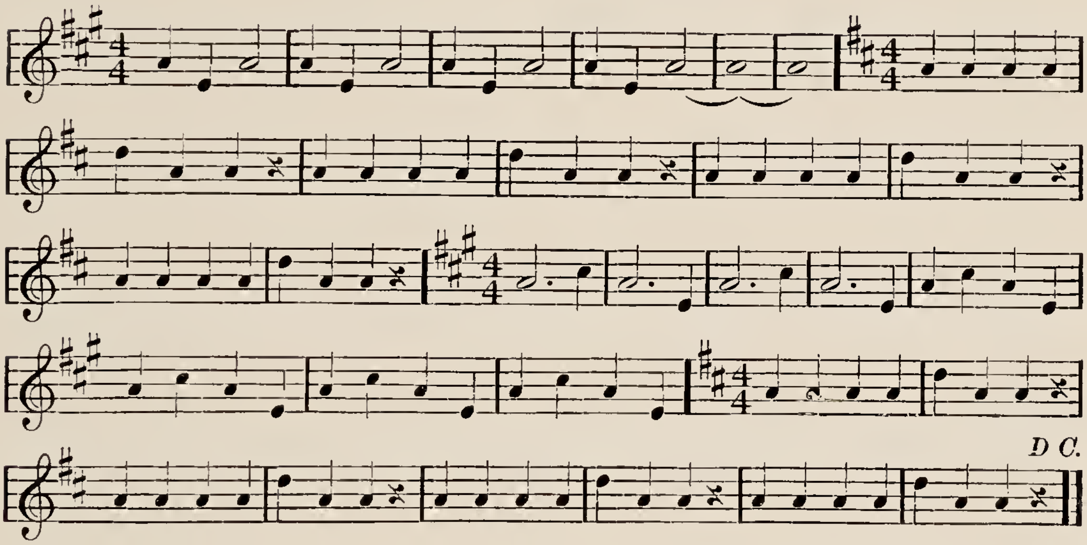
The Dance

When we arrived, the villagers were making ready to celebrate a dance in honor of the visiting Parukutu people, who had already accepted an invitation to take up their abode with the Waiwais. Our coming in such large numbers caused some interruption and change in their plans, twenty eight hungry visitors must be fed before anybody would think of dancing. Courtesy required that strangers should receive first attention. The dance was postponed until after our camp had been made and we had rested, bathed and eaten a good supper.

Just at dusk the chief came to our camp and asked us to come to the dance, which was to begin immediately. We all went and sat on stools and logs around the dancing ground, a smooth space between the houses and in front of the chief's house. None of our Tarumas or Wapisianas took part because they did not know the dance. At the beginning, four women and three girls went to the middle of the ground, caught hands with fingers interlaced and began to dance in a circle. The leader carried a small rattle and all sang in a low voice. Then four men and four boys formed and danced in a circle around outside the circle of female dancers. The leader carried a gourd rattle for keeping time, and all sang in loud voice the same tune the women were singing but not in unison. Both circles moved contra-clockwise, advancing and retreating as they danced, but entirely independent of each other—like two rings at a circus, except that here one ring was inside the other. The rhythm was emphasized with the rattle and a slight emphasis with the right foot. The men varied their music by allowing the leader to sing alone at times, while the others would blow peculiar great trumpets and a flute of jaguar bone; then all would join in the chorus. All danced slowly about once around the circle, or until a certain place in the music was reached, when they took a side step and moved back the circle sidewise for about a fourth of the distance, then they moved on as before. At the stop in the circle, as the retreat began, there was a marked bow or curtsy, and at the beginning of the next advance there was decided emphasis placed upon the first step and the body was thrust forward. After singing through, as indicated by the music as recorded below, the men would end up with a yell on a high key, and begin all over again.

Before the dance began two young women took their places in the centre of the inner circle, holding large bowls of drink. At the end of three songs the men stopped dancing and the girls brought the drink to the leader first and then to the others down the line. While the men were drinking, the women danced around a small circle at one side; and while they were drinking, the men danced at the other side of the ground. Then the double dance was resumed as before. And so the dancing and the drinking continued for two and a half hours. From time to time one dancer would drop out and another would take the vacant place, later on the children dropped out for good and others came in.

SUNG BY WAIWAIS IN THEIR DANCES



After the dance had gone on for some time and the first drinks had been served, two clowns suddenly appeared and performed their own dance up and down on one side of the dancing ground. Each carried a tortoise shell resonator and a shrill whistle. The under lip of the shell was coated with black pitch, which, when struck a glancing blow with the heel of the right hand, adhered sufficiently to cause the lip to vibrate and to produce a loud chirping sound. The whistle was blown on the accented beat and the resonator struck on the after beat.

The whistles were of different sizes and tones, as were also the tortoise shells. Each performer danced vigorously in his own time making all the noise and antic movements possible; one behind the other for ten yards, then facing each other, one dancing backward and the other forward, each with hollow back, lifting knees high in the air as if doing a negro cakewalk. Finally they were given drink which kept them quiet for a few minutes only. The regular dancers paid no attention to them but the observers laughed heartily at their antics.

The women danced in their ordinary dress and without any special ornaments or decoration. Their hair, usually hanging over their shoulders, was tied in a knot behind the head. The men and boys wore mantles of aeta palm leaves reaching from the shoulders to their knees and headdresses of the same material with fringes of inner leaves of the same palm hanging down over their shoulders. The leader carried a rattle in one hand and a ceremonial club in the other, the man next to him carried an arrow and bone whistle, the next a decorated club, and all the others carried the trumpets which they blew constantly when not singing. These trumpets were made of the inner bark of the cakaralli tree (*Secythis ollaria*) by winding a band of bark in a coil three feet long, one inch in diameter at the mouth and four inches at the bottom. The band was held from uncoiling by tying four ribs of palm fronds lengthwise.

When the Waiwai dance ended the men of our party were asked to give an exhibition of a Wapisiana dance. They hesitated, saying they could not dance without their women folk, that the women were good singers but the men in our party were not, etc., but finally said they would do their best under the circumstances. They did well, but I fear they felt far short of the standard set by our hosts, who looked on with great interest and enjoyment. It was really a great event in their lives. We persuaded the Waiwais to repeat their dance the next day so that I might get some photographs. (Plate XI, C.)

DRINKS

The Waiwais make two varieties of intoxicating drink which are used at their principal dances. One of the drinks is practically the same as the Wapisiana paricari and manufactured in the same way. The ordinary cassava bread is taken when fresh and hot, placed in a basket and dipped in cold water. The soggy bread is then spread out in a layer two inches thick and five or six feet across, on palm leaves or banana leaves which have been laid on the ground floor in the darkest part of the house. As the layers are put down they are sprinkled with the pulverized leaves of a certain shrub. When enough bread has been used the whole bed is covered with palm leaves and allowed to remain for four or five days. The layers of bread have fermented until they are double their former thickness and covered with a heavy white mold. The bread is very soft and sweet at this stage and small quantities are eaten. The rest is mashed up with water and stored in large bowls for two or three days, when it becomes completely fermented and is mildly intoxicating. It is weakened with water to suit the taste, and the particles of bread strained out by means of a small basket. This drink is not so pleasant to the taste nor so intoxicating as the chichi made of cassava and corn by the Conebos on the Ucayali.

The drink used on ordinary occasions is made of the common cassava bread, a portion of which is chewed and the whole mixed with water. It may be drunk on the second day but is at its best on the third when it is usually consumed. This is the drink the visitor is always offered when he enters a village. It is very refreshing and pleasant to the taste. Fortunately the traveler develops an appetite for it before he learns of its manufacture.

They make a number of unfermented drinks by using strained cassava juice or crushed fruits. The fleshy covering of the seeds of several varieties of palm is used in making a thick, heavy drink. The ripe fruits are soaked in water and rubbed between the hands until the seeds are freed. The seeds and coarse particles are strained out and the drink is ready to use. This is really more of a food than a drink and is very nourishing. The bacaba (*Enocarpus distichus*) and assaii (*Euterpe oleracis*) are most desired and most abundant.

Drink Etiquette

The chief serves visiting chiefs and passes the first bowls to others to serve. When the chief serves you he brings a large bowl which he continues to hold while you take hold of the bowl also and drink its contents without removing your lips. When he passes the bowl for you to drink you may drink and pass it on but the bowl must always come back for you to pass to the chief. Large bowls are often placed in front of the house and everybody invited to help himself. When one drinks he may set the bowl down or pass it to another who has approached. All the drink was made in the chief's house and it became a sloppy place. Women bring out the bowls but never serve the drink except to men when they are dancing. When we were about to leave the village the women worked hard for three days making bread for us to take on our journey, but the chief had a lot of it made up in drink saying that we could not possibly eat so much bread. They themselves carry very little food when travelling.

Quipu and Record Sticks

In earlier times, when the Waiwais gave a great dance and drinking bout, they sent a courier to the Tarumas with an invitation in the form of a bunch of knotted strings. A number of strings made of aeta palm fibre were tied together at one end; one string for each Taruma invited, and each string contained as many knots as there were days intervening between the day the messenger set out until the day the dance should begin. A group of knots, equal to the number of days the messenger was on the way, were dyed a certain color; another group of knots, equal to the number of days necessary for the Tarumus to make preparations for the journey, were dyed another color and a third group equal for the journey to the Waiwai village were dyed still another color. The last knot on the string marked the day for the beginning of the dance. The whole lot of strings were delivered by the messenger to the chief of the Tarumas, who distributed them to the persons invited. The messenger carried a separate string for himself and untied a knot each day. A similar string was kept by the Waiwai chief who untied a knot each day until the party arrived. The messenger might return after a suitable rest or he might remain and go along with the Tarumas.

As the dance would last for several days, it was necessary for the Waiwais to know how many guests they should have in order to provide sufficient food for them. Therefore they sent individual invitations rather than a general invitation to the whole tribe of Tarumas. This method also made the Taruma chief responsible for the persons he brought with him, that is, the strings were all sent to him and he distributed them as far as they would go.

When we visited the Parukutu village on the Apiniwau, we met there a Diau messenger who came to invite the Parukutus to a dance at his village. He carried a single string of knots and untied one each day. When the time arrived to go, we went with him and a young Parukutu, the only one who went from the village. We spent eleven days on the way and arrived one day before the conclusion of the dance just as the messenger had planned for us to do.

HUNTING AND FISHING

The Waiwais and all the other forest tribes have good fields, but depend more upon the chase for food than do the Macusis of the savannah. There are here the same division of labor and the same cultural elements found among the Macusis. The Waiwais hunt or work in the morning and lie in their hammocks in the heat of the day. We had been working with the chief all morning, getting language and customs; he stopped short and, looking up at the sky, said, "The sun is high; it is time to take our rest." The men go hunting before day and are usually back before noon with plenty of game. The dogs are kept tied on platforms high above the ground and are taken out to the forest after peccaries or tapir have been sighted as already described. The streams are so small there are no large fish, hence the fish hook and bow and arrow are not much used for fishing, but the streams are poisoned instead. The forest Indians care less for fish than for game. The bows used by the Waiwais are longer and stronger than those used by the Macusis or Wapisianas. While hunting they carry the bow and arrows in the left hand, with free end of the bow and the points of the arrows forward. The surplus string is wound around the end of the bow which is held down when shooting. They hold the bow in a vertical position, and pull with three fingers on the string, holding the arrow between the thumb and index. The Wapisianas pull with the thumb and index finger only.

Nearly all the interior tribes have a few chickens, but they are not eaten because they are unclean. They are kept solely as song birds. The people enjoy hearing them crow in the early morning. At one village we found three cocks and one hen, at another one of each, at another three cocks only. When the cocks crow the people waken up, talk a few minutes and go to sleep again. The curassow crows at about the same time, but he cannot be heard at a distance, so the hunter uses the domestic cock for an alarm.

HOUSES

The large communal house was 66 feet in diameter, a perfect cone, 60 feet high to the apex. The centre pole continued 35 feet above the house and was topped with a Brazil nut. Two feet above the top of the house a canopy 5 feet in diameter, attached to the pole, covered the smoke hole in the roof. The framework was interesting and unlike any other met with among any of the tribes, yet I imagined it was the ancient type. There was a centre pole 95 feet high, six main supports in a circle 18 feet from the wall and 20 feet high, with notched tops to carry the circular plate, and seventeen outer supports 4 feet from the wall and 8 feet high to carry the lower plate. The poles used for the plates had been split and bent to form perfect circles. Twenty eight main rafters were lashed firmly to the centre pole and to the two plates, while an equal number were lashed between the plates, all extending to within 5 feet of the ground. Laths were tied to the rafters 2 feet apart. The wall was supported by small poles set into the ground 2½ feet apart and tied to the lower lath. To these two bush ropes or vines were tied two feet apart. The wall was then made by tying upright palm leaves to the bush ropes. The roof was made of palm leaves laid up and down with the leaves of the fronds all bent to one side. It was begun at the bottom, the leaves reaching up over three laths. The second course overlapped the lower 3 feet.

There were two doors, one on the east and the other on the west. The one on the west was for the women particularly, while the other was used by both sexes because the guest house was thirty yards east of the main house, and it was necessary for the women to carry out food and drink for the guests. The doors were 2 feet wide and 5 feet high, covered at times with loose palm leaves.

The peculiar feature is yet to be noted. The centre pole, having served its purpose in the construction of the house, was cut off nine feet from the ground floor and decorated with a design. The removal of the pole made available the whole central portion of the floor as a general workshop for the women. There were no partitions, but each family had its own section with its own fireplace, swinging rack for food, hammock posts, and against the wall its own dog platform.

The visitors' house was used also as a workshop for the men. It was 20 feet in diameter and 18 feet high, without side walls. Visiting women were always entertained in the big house.

In the present new village there is one round house for the chief and his two wives and a number of small shelters without side walls for the other families. There is no visitors' house, so it was necessary for us to camp in the forest, where we could have the trees for hanging our hammocks. As it was the dry season it did not matter.

All refuse about the house is gathered up and placed on a dump ten yards away where it is burnt at irregular intervals. By this method the village is kept in fairly good condition.

The Arts

The Waiwais decorate their bodies with color and ornaments without special significance. The body is usually painted all over with a dull brick red paint, while the face is not painted in solid color, but only in the proper designs in a much lighter shade of red. These designs are the same as those found on ceremonial clubs, baskets, knife handles, whistles and beaded aprons. They have no relation to a totem of the tribe or a personal protector of the individual. The same man may from time to time use any or all of the designs. They seem to have no significance other than to satisfy the individual taste for beauty. The designs have their origin in nature, in the peculiar markings of animals or plants. The women do not paint the face except on special occasions. Among the Waiwais there was one fine looking young fellow who was very proud of his physical appearance. Every morning after taking his bath, except when he was going to work or to hunt, he would oil and comb his beautiful long hair, twenty eight inches in length, and slip on his well-decorated hair tube; then he would paint his face with a variety of designs. In the evening he would wash it all off and in the morning put on other designs, so changing his appearance that it was difficult to recognize him. He used more paint than all the others combined. The Waiwai chief and one of the Parukutus were usually painted. The Parukutu and the Diau women used more paint than those of other tribes, but here again it was a matter of the better looking ones who paid most attention to personal decoration. It often happened that these young women were the ones selected to chew the cassava for making their intoxicating drinks and they wore the permanent tattoo marks at the corners of the mouth. In Plate XL a number of the face paintings have been grouped for study in connection with the original drawings in Fig. 7, and the copied designs in Fig. 8.

One day when I was making rough sketches of houses and designs on various objects about the village, I noticed a boy who seemed greatly interested. He had never seen a pencil or book before but he apparently appreciated the fact that I was doing a very poor job and was anxious to help me out. So I gave him a note book and a pencil which he immediately began to use. He did not recognize the value of the round point of the pencil but used it as he used a splint of bamboo in laying on face designs, that is, by drawing the point along after the slanted pencil. After several hours of intermittent work, extending over three days, and consultation with others, he succeeded in making some thirty drawings. About half of the more characteristic ones are reproduced in Fig. 7. Many of these will be recognized at once as animals. His drawings show the common difficulties that all peoples have experienced when attempting to reproduce animal forms. The distinguishing features of some may be viewed best in profile and others in the dorsal aspect. Some animals possess characteristics of form or color markings which serve best for their identification. Plants and many other things in nature are most accurately described by using their peculiarity of form or feature.

In Fig. 7 are reproduced a number of the boy's original drawings along with his names for them. One who is acquainted with the objects will at once recognize them. It is interesting to note that the figures, although drawn with a pointed pencil, are all angular. This fact together with the cross hatching of some of the objects would indicate that he drew from his memory of the figures as they appeared in basketry rather than from sight of the objects in life. As it would be difficult to distinguish

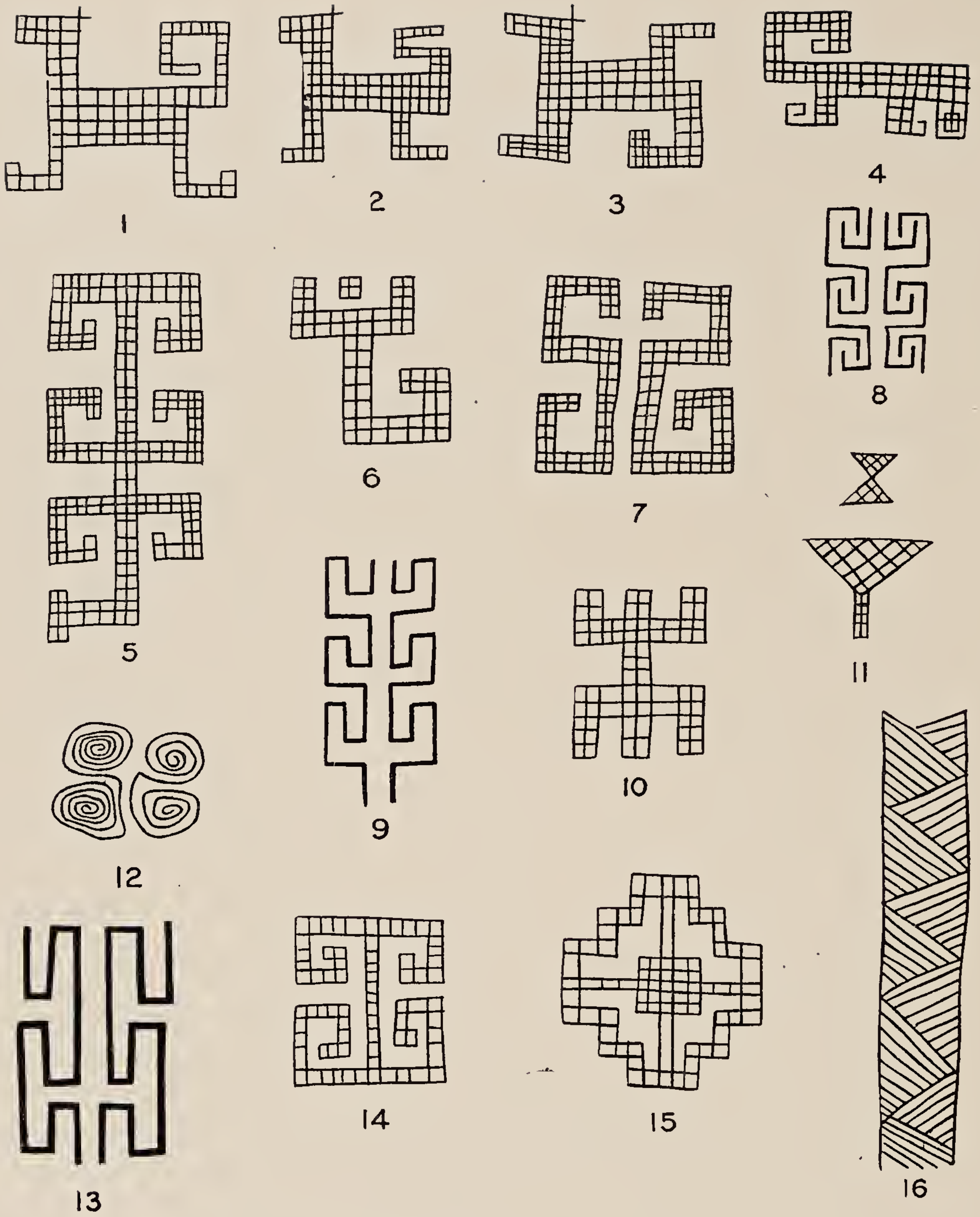


Fig. 7.—Original Drawings, Waiwai

1.—Jaguar
2.—Squirrel
3.—Dog
4.—Howling monkey
5.—Great sloth
6.—Scorpion
7.—Lizard
8.—Lines on a small sloth
9.—Acouri
10.—Frog
11.—Fish tails
12.—Fly's eyes
13.—Wasp's nest
14.—Bamboo
15.—Palm leaf
16.—Palm leaf

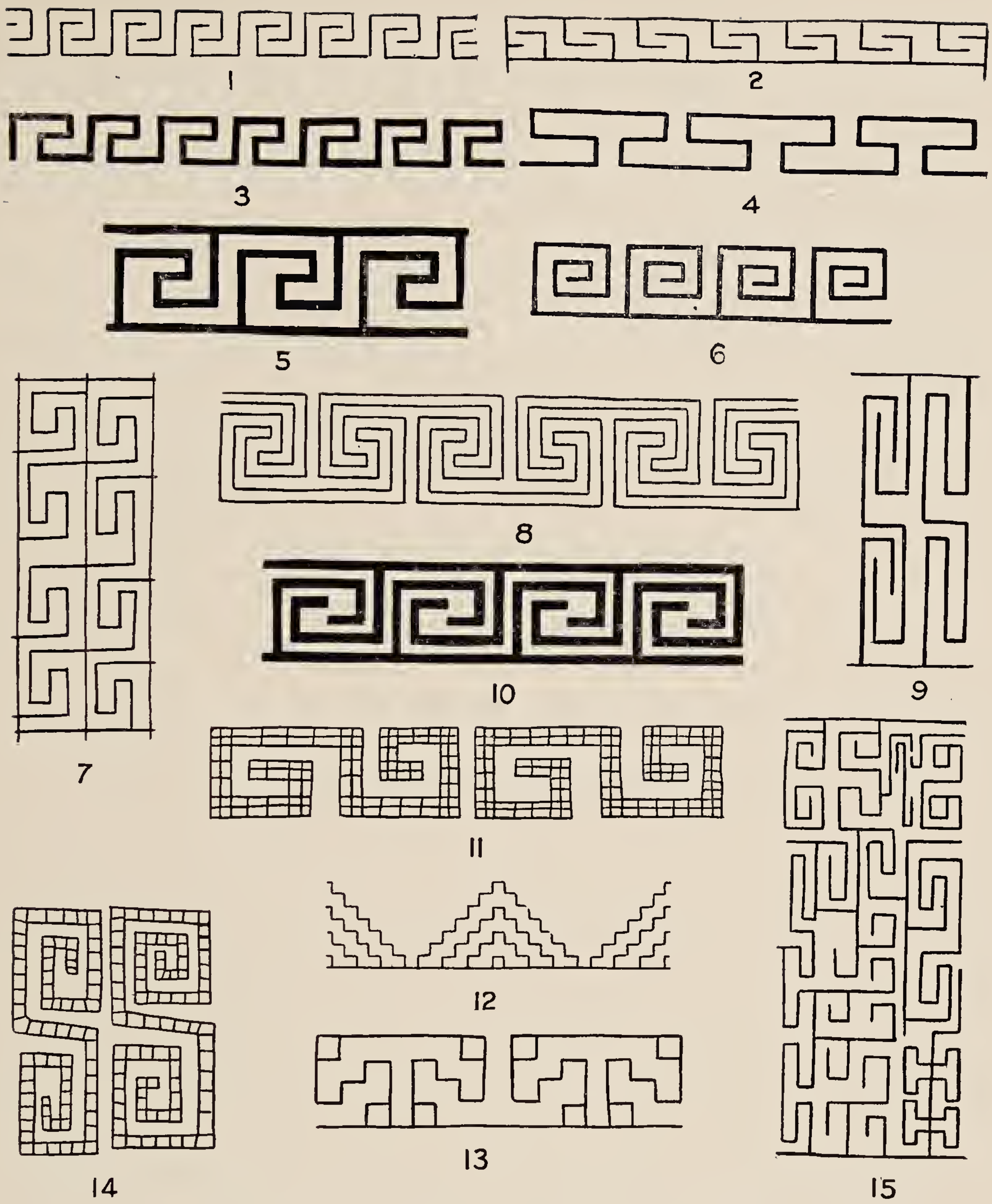


FIG. 8.—DESIGNS COPIED FROM VARIOUS OBJECTS AMONG MANY TRIBES

1.—Small sloth design. Beaded apron. Apalaii
2.—Small sloth design. Beaded apron. Apalaii
3.—Acouri design. Beaded apron. Apalaii
4.—Wasp's nest design. Beaded apron. Apalaii
5.—Bamboo design. Beaded apron. Wapisiana
6.—Great sloth design. Painted stool., Waiwai
7.—Small sloth design. Painted flute. Wapisiana
8.—Bamboo design. Beaded apron. Diau
9.—Acouri and small sloth designs. Painted on knife handle. Waiwai
10.—Lizard design. Palm leaf fan. Apalaii
11.—Lizard design. Painted on bark arm band. Waiwai
12.—Palm leaf design. Beaded apron. Apalaii
13.—Bamboo design. Margin of basket. Ataroi
14.—Lizard design. Carved on wooden club. Waiwai
15.—Combined design. Painted centre pole in house. Waiwai

the forms of some of the animals, a characteristic part or color marking was used instead; a fly's eyes, an ant's jaws, an alligator's scales, fish spines, a peccary's ribs and the color patterns of the acouri, sloth, snakes, palms, bamboos and canes.

Many of these designs appear in recognizable form woven into men's trinket baskets, carrying baskets, trays and sieves; carved and painted on knife handles, whistles, clubs, stools and mortars; and woven in women's bead aprons and combs. The relation between warp and woof render it impossible to make curved lines or diagonals except in step patterns. The figures are thus compelled to assume rectangular forms which make it impossible to reproduce realistic objects true to nature. Distinguishing features must be exaggerated in order to insure the proper interpretation.

The aprons worn by the women have designs worked out in different colored beads. The Macusis seem to prefer the apron entirely covered with a single design. Plate XXV, A shows the repeated doubleheaded scorpion design. The interior tribes prefer the body of the apron plain with running border designs. Plate XXV, B has a wasp's nest design top and bottom, while Plate XXI has a palm leaf design at top and a double line of designs at the bottom, composed of the small sloth and the wasp's nest patterns.

Fig. 8 contains fifteen of the more common designs selected from the decoration of things in common use. By comparing these designs with the original drawings in Fig. 7 it will be seen that many of them are the repeated fragments of the originals. Sometimes the design is modified to fit the surface of the object to be decorated. The cross hatching indicative of basketry origin often persists in carvings on ceremonial clubs, whistles and knife handles. Usually a single design is repeated in a continuous border, but occasionally a figure is composed of a combination of several designs as in No. 15, Fig. 8, which was copied from a painted design on the centre pole in a large Waiwai house. Many of these same realistic designs are used in personal decoration as shown in the portraits.

All the designs used by these interior tribes had their origin in realism, and many of them were used first in basketry and later copied directly for use on other objects. Each individual adorned his own productions; art had not become specialized in the hands of a few who excelled in it. Men and women used the same designs in personal decoration and on their belongings. There is no evidence of fetishism or totemism, neither ancestor nor animal worship. Religion was undeveloped and simple in form, hence art lacked its greatest inspiration. The tribes lived far apart and had little stimulating contact with their neighbors. Their art had hardly passed the physical aspect in which pleasurable sensations are produced by the harmony of lines and the blending of colors. Art was applied to the person for embellishment and to the few articles in daily use for ornament. Their bodies were decorated with color and their objects ornamented with designs without any special significance.

The art is in such an early stage of development that all the steps in its evolution can be directly traced with certainty. Realism, conventionalism, symbolism and geometric designs are all present, and separate elements are often used for purely artistic purposes. The fundamental ideas underlying the significance of all designs are remembered, and traced to natural forms. This is one of the most interesting and important cases on record proving the origin of art from realism.

The Dead

The Waiwais and the other forest tribes cremate the dead. When anyone dies the relatives and friends take the body in its hammock hung on a pole, carry it away into the forest, build a heap of logs and brush, lay the body on top and set fire to the heap. When the fire has burned out they gather up the ashes and fragments of bones in a large drink pot, cover it with a bowl and leave it on the site without other covering; or a hole is dug in the centre of the heap of ashes, the fragments of bones thrown in and a large pot turned upside down over them. Sometimes palm leaves are thrown over the heap of ashes and a pot inverted above the charred bones. Personal things are burned with the dead: A man's ornaments, necklaces, shoulder basket, containing comb, paint, knife and arrow making implements; his breech cloth and hammock are all placed with the body but his bows and arrows are broken and thrown away in the forest. A woman's ornaments, her work basket, containing spindle whorls and implements for making pottery, her aprons and hammock are burned with her but her cooking pots, food bowls, water jars and calabashes are broken and the fragments scattered.

The people would never die if it were not for enemy spirits in the shape of Kenaimas or for the influence of the medicine men of enemy tribes. The enemy may only touch them or blow upon them or anything belonging to them to cause sickness and death. Hammocks are put away when not in use. A wornout carrying basket is never thrown away, it is burned so the enemy cannot blow upon it and cause backache. On our journey when it became necessary to make new baskets the old ones were very carefully burned. The loose hair combings are cut up fine and scattered away from the village.

Origin of the Race

All the interior tribes have variants of the same story of the origin of the human race. Two brothers were living together in the interior of the forests on what is now known as the Calabash River, the Bonawau, a branch of the Apiniwau at the headwaters of the Trombetas. The brothers believed there was a woman in a certain pool in the Bonawau and they went together in a boat to fish for her. They used for hooks the lower jawbone of the pacu (*myletus pacu*), cut off and sharpened on one side. They fished for many hours without success; the elder brother, becoming weary, fell asleep, and while he slept the younger brother caught the woman, took her to his leaf shelter and returned to the boat before his brother awoke. Now it happened that the elder brother had a fish trap, of the funnel type, set just below a fall between two pools in the river. Every morning he went to the trap, but something had been there before he arrived and had removed the fish. So he placed a screech owl on top of the trap to watch for the thief. Many fish fell into the trap and just before daybreak some strange animal somewhat resembling a man came along to the trap and removed the fish, but before doing so it hung the crown or headdress it was wearing on the top of the trap not noticing the owl. The crown went right over the owl's head and he promptly flew away with it to the elder brother and told him what he had seen and what had happened. From the owl's account, the elder brother knew that the animal was the woman for whom they had been fishing and he was very anxious to find her and to have her for himself. He thought she would come at once for her crown and follow after him in order to get it. He took the crown and went across country to a mountain top and from there started up into the sky. The woman came in search of her crown. Some people in a village told her that some one carrying her crown had gone up above. She followed up into the sky and after passing two villages where the people told her they had seen some one carrying her crown, she finally came to a village where she found the elder brother with her crown. The elder brother caught her, made her his wife and brought her back to the forests where they became the progenitors of the present race of Indians.

The Sacrifice of the Maiden

The trail between the Waiwai villages passed by a small lake a half mile wide and a mile long, in the depths of the forest at the northern foot of the Acarai Mountains. Some time before our visit there had been a great forest fire which had killed all the trees around the lake and to a long distance along the valley to the west. The large trees had fallen in such profusion that we had difficulty in crossing above the lake. The men lost the trail and had great trouble to find it again on the other side. The ground was so soft we had to walk on the tree trunks. There were some ducks in the lake and we tried in vain to get them. That night, at our camp, we were talking about all the series of troubles and ill luck we had had in passing the lake. Then the Waiwais told us that it was due to the evil spirit of the lake. A long time ago this spirit killed people and it was dangerous to go near the lake. So many of the Waiwais were killed that it seemed the whole tribe would soon be destroyed. They called upon the spirit to see what could be done to save their people. The spirit told them he would kill no more people if they would sacrifice to him their most beautiful young woman. They selected a beautiful virgin and threw her into the lake where she still lives with the evil spirit. None of the Waiwais have been killed since then, and they travel around the lake without fear of harm.

Paiufon Mountain

A long time ago the Karap Indians, who lived far to the southwest of the Waiwais, made an expedition against the Waiwais for the purpose of securing women and slaves. The Waiwais were overcome and driven from their country. A few of them, however, escaped by climbing up the steep side of Paiufon, a mountain considered too steep for anyone to scale. The Karaps, thinking they had killed or captured all the Waiwais, went away to their own country. The Waiwais left on the top of the mountain built a house and cleared a field there. They got their water from a stream on the northeast side of the mountain. Many seasons afterward some Karaps, when passing by the mountain, heard the sound of whistles from the top and thus they learned that some Waiwais had escaped them. They at once came in large numbers and made an attack but the Waiwais, having such a strong position, finally succeeded in driving the Karaps off with great loss. Since then the Waiwais have never been attacked by any people, and they look upon Mount Paiufon as their deliverer.

On December 29, 1913, John Ogilvie and I, accompanied by one Ataroi, one Taruma, two Wapisianas, one Parukutu and five Waiwais climbed Paiufon Mountain and secured a magnificent view of the whole region except to the northward. The round point, thirty feet across, stands up about 1200 feet above the general level of the surrounding country. In front there is a vertical rock wall, impossible to scale, while at the back there is a steep slope extending to the plain a mile away. We were unable to find any evidence of a house site or extended occupation on the mountain; yet it is quite possible that the Waiwais took refuge there and defended themselves against their enemies. It is the highest mountain in the neighborhood and the only one with steep sides. It is the only one distinguished with a name. We could see eight others a thousand feet or more high, but the Waiwais with us had no names for them. They pointed out the direction of a trail which led from their village, six days' journey, to the Trombetas River. We could see a line of mountains extending north and south beyond the Trombetas. We talked of taking the trail to the river, but the Indians said no one lived along the river because there were so many rapids they could not travel in canoes, and the country was too mountainous. They would not go with us.

The Wooden Whistles

A long time ago some men were hunting in the mountains far away from home and they heard a peculiar whistling noise which they could not understand. They were so frightened they could not go on and learn the cause of it. At other times other hunters heard the noise and were afraid. At last a medicine man, a piaima, said he would go and see what it was that made the noise. He went alone and after several days returned, saying that he had found a peculiar wooden whistle in the mountains which made a most remarkable sound. He made a whistle like the one he had seen. It was the first musical instrument the Waiwais ever had (see Plate XXXV, A). It is no longer in use, and no one knows how to play it. Ogilvie found a part of one at a deserted house, and one of the old men knew what it was and had some made for us. It is made of a solid kidney-shaped block of wood by cutting a deep hole in the side, drilling a tongue hole to the edge and covering the hole in the side with the end of a gourd as a sounding box.

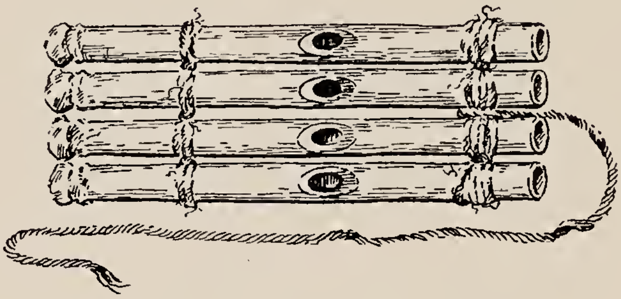


Fig. 9.—Waiwai Whistles

Future of the Tribe

There are only five pure blood Waiwais remaining; the chief and one of his wives on the British side of the Acarai Mountains and the chief and two boys on the Brazilian side. The village on the British side has three men, one boy and four women. The chief has taken a wife from the Tarumas and he will soon become the chief of the Tarumas. Thus the Waiwais will disappear and all will be known as Tarumas. On the Brazilian side there are in the village nine men, eleven boys, six women and eight girls. All the women and girls are Parukutus so the present generation will see the end of pure blood Waiwais, but the village with the other Parukutus coming in will continue to be known as Waiwais. The only possibility for the birth of another pure blood is with the chief and his wife on the British side but their offspring in the future are most likely to be known as Tarumas.

VOCABULARY

ENGLISH—WAIWAI

acouri	haklĭ
acouri, small	fackiemĭteu
aguti	packi
alligator	watawa
anaconda	malikătoiko
ant bear	hama'atci
ant's jaws	tikwiyonato
ant's nest	so'oro
anus	boloko
arm	kepa'ala
armpit	keyalĕlĕ
aunt	yememĕ

back	bacelĕ
bamboo	waratapi
bank of river	tcewawa
basket, double	owamginto
beetle	matkanunĭ
belly	dasĕsĕle
blood	kamacoko
braid	watwamĭnito
breast	menatĕle
brother	tciwŭ
bushmaster	kĭlinŭ
buttock	kekunu

capabara	yewĕ'ĕla
cheek	ketale
chief	kiwĭnĭk
child	likomo
chin	kĕtotcele
clam	fo'oto
crab	tcĕkawa
curassow	powici
curassow, barred	watcinama

daughter	maña
deer	pickalo
deer, red	koaso
eagle	yai’imu
ear	penale
eye	keulu
eyebrow	kebicelola
father	afafamutha
finger	kemorĕtcĕ
fish, pirai	tambari
fish spines	wanakaka
fish, tiger	hailasi
fish trap	kamili
fish tail	ma’ati
fish tail design	malkolohedmo
flies	tamatausa
foot	ketale
frog, green	kramoto
frog, tree	kidufapa
grandfather	walito
granite	to’onale tokono
guam	kuyui
hair	kepotcĕ
hair, pubic	botci
hand	ketamomito
head	kekamasewe
house	mafaliku
house, communal	miumu
jaguar	tcefali
jaguar, black	kamara
jaguar, spotted	kama’ara
leg	keholĕho
lip	ketatciwitca
lizard, small	ĭrapa

maam	potowa
male	kĕlokomo
man	ta’ata
man, old	wali’ilomoto
man, young	kalihamtcau
maruda	marata
moon	mu’uñi
monkey, howler	cifula
mother	yemĕmĕ
mother, grand	ca’atca
mouse trap	kefúlikatcó
nail, finger	kemacĕsbau
neck	kehwĕmule
nose	kewanalĕ
otter	waiyawaiya
otter, small	saro’oro
paca	wi’ibya
palm leaf	kuroheli
palm leaf mark	tcenitamoyam
peccary rib	fakiautcito
penis	ku’uno
person	ta’ata
powis jaw	fauyicoyali
pulse	kemikĕnalcolo
puma	kosowari
sand	hacawa
scar	kesĕfalŏntai
scorpion	tcĭkidi
shallow	pĕnafi
shoulder	kumhĕ
side	kawitce
sister	wa’atci
sloth	tcoholi
sloth design	wayimatum
sloth spots	waiyamamoli
son	wahali
spider	maiyŏsĭ
squirrel	kamarama

stars:	
A. Grus	cikilĭ
Betelgeux	foinalu
Canopus	swaitsfai
Fomalhaut	kanakilulĭ
Mars	waiuiwa
Orion	waiyam
Pleiades	tciyakoimu
Sirius	fuiton
stone	tokono
stranger	pawana
sun	kamŭ
tapir	yaiyapu
testicles	kemuru
thigh	petĕ
toad	kulukilina
toe, great	keherolehemato
tongue	keñole
tooth	keyole
tortoise	waci
tortoise, small	maiyawaka
turtle	waiyam
umbilicus	konoetwe
uncle	ta’am
vagina	muña
vulture	kuru’um
wasp’s nest	komalimetceu
water	tuna
woman	wa’acam
woman, old	notcokomoto
woman, young	ema’asa
wooden whistle	horonto
worm	kalyiwa
wrist	kemĕkana

NUMERALS

1. tcauoñĭ
2. asa’aka
3. tcorohoko
4. takanaiyasoka
5. kamolyĭ
6. tcĕtcokĭ
7. hĕtcĕmikamolyĭ
8. hĕtcĕmimŭka
9. tematosa
10. yamela
11. kehilolofonĕ
12. kehilolotakanaiyasoka
13. hĕtcĕmikekelo
14. hesa’akĕ
15. oholyehĕmakamolyĭ
16. hĕtcĕmahola
17. hesa’akaholola
18. fanatili
19. ohorolopanato
20. tcowĕñecaholola
21. anolahahorola

In counting, the Waiwais always begin with the index of the right hand, count down to the little finger and go back to the thumb of the right hand then pass over to the thumb of the left hand and count down the fingers. If more than ten objects are to be counted, they begin with the great toe of the right foot, count to the little toe and then go over to the great toe of the left foot and down to the little toe. If you ask a man how many fish he caught he would hold up his index of right hand and say tcauoñĭ for one; if he had caught seven he would not hold up the index of his left hand but would count over his fingers to the index of his left hand. If the chief wishes to send a man to the forest to cut palm leaves for the roof of his house, he does not say the word for twenty but counts over all his fingers and toes while the man looks on.

WAIWĔS OR KUTCIFIANAS

The home of the Waiwĕ tribe is on the Trombetas River below the mouth of the Apiniwau. We saw only two members of the tribe; two brothers whose father brought them up the Puduwau or Black River when they were small boys. Their home village was attacked by an enemy tribe, and all the inhabitants killed except the father and these two boys, who fled from the country. The Waiwĕ language very closely resembles that of the Waiwais. The two men had forgotten their former culture and beliefs, in the lapse of time and their association with other tribes. One of them (Plate XVI), married a Mapidian woman and is the chief of a small group composed of Mapidians and Parukutus living on the Puduwau River. The Mapidians call the Waiwĕ, Kutcifiana.

PARUKUTUS

All the Parukutus formerly lived to the southeast of the Waiwais, and many live there yet, but most of them have moved northward among the Mapidians (Arawaks), with whom they are on friendly terms. Their small villages are widely scattered about the head of the Puduwau and on the Apiniwau Rivers. They are linguistically very closely related to the Waiwais, as will be seen by comparing their vocabularies. In physical appearance and in culture the two tribes can hardly be distinguished. Two men with the roughest features encountered in the whole forest area were Parukutus (Plate XV, F and G), but other men and women have as smooth and regular features as any of the tribes.

At the first village we encountered, eight days after leaving the Waiwais, where a number of Parukutus are taking up their abode, there was one family living with some Mapidians, an old man, his wife and one son. They had very little about them of any value, nothing to exchange. The man had one fish hook only, but fortunately for him now he had several years before sold a dog to one of the party travelling with us. It was the first time they had met since the transaction and our boy immediately discharged his debt by giving the old man some fish hooks, beads and trinkets he had received from us. The old man acted as our guide to the next village, and thus earned a payment which will keep him happy the rest of his life.

The Parukutu chief at Tcara Nawa on the Kaitcana River appeared to be the oldest man any of us had ever seen (Plate XIII, A). His eyes were dim, his teeth were gone, and his thin skin hung in flabby folds from his stooping frame, but his fine hair was only streaked with gray. He had been a noted medicine man and still remained a greatly respected chief. He tottered about with the support of a tall staff and took a deep interest in us, our clothing, and all the new things we carried, such as the magnet, compass, binoculars, sextant, mercury, camera, pedometer and watches. He had never seen white men before nor heard of such things as ours. Our visit must have given him a new lease on life; at least it gave him something to think about for the rest of his numbered days.

None of the forest tribes visited used salt, and not one of the people cared for it or would eat it with the exception of the old chief of Tcara Nawa. He had a few sweet potatoes, not sufficient for all of us so he divided with me. I ate mine with salt and offered the old man some. To my surprise he liked it and every day came hobbling out to share the potatoes and salt with me. Salt was the only article of diet we were able to carry.

Tcara Nawa is made up of the remnant of a large group of Parukutus who came from the southeast and settled along the lower course of the Kaitcana River a very long time ago. They came into contact here with a very warlike tribe, the Chikena, who finally drove them up to the head waters of the river. The two peoples became hated enemies, killing each other at sight, until now there are very few left of either tribe.

The final destruction of the old chief's village was accomplished by a more distant tribe of Chikenas, who came to exterminate them because they had blown an epidemic of sickness upon the Chikena village and caused the death of many of their people. When the Chikenas came to the river they found the Parukutu village temporarily uninhabited, but knowing which way the occupants had gone they went up river to where it was very narrow and awaited their return. Their plan was to shoot from ambush, kill all the men and carry off the women and children.

It so happened that the Parukutus who had gone up river visiting did not all return together. The chief and his family remained behind for three days, while four men and three women with one small baby went on in advance. When they reached the ambush of the Chikenas, the four men were killed with the first volley of arrows but the women, unhurt, attempted to make their escape. The woman with the baby crossed to the opposite side of the river where a man followed her. She put down the baby and when the man attempted to take her she hit him with a club and broke his arm but he still clung to her and she struck him across the other arm and broke it also. He called for help. Two men came and shot the woman with arrows until they had killed her. Then they took the club the woman had used in breaking the man's arms and killed the baby. One of the other women fought so fiercely they had to kill her; while the third was overpowered and carried away to be the wife of one of her captors. After burning the village the party returned to its home in the interior, having destroyed, as they thought, the source of all their suffering.

When the old chief and his family started to return to their village and came to the narrow passage in the river they saw there some king vultures and a great many others of the common variety and wondered what brought them there. They got the odor from the dead bodies and found a dead man with two arrows through his body, another lying dead on the rocks and the skeleton of another in the river where the fish had devoured his flesh. They turned away from the horrible sight and returned to the friends with whom they had been visiting without going on to see the destruction of their homes.

A brother of one of the murdered women, who lived far down the Apiniwau, was expected to marry the daughter of the old Parukutu chief. He happened to come up to pay a visit to the chief just a few days after the massacre, and when he found the village in ruins and the skeletons of his friends strewn along the river he was so distressed that he went away never to return. The chief continues to speak of him as his son in law.

Meanwhile the feud goes on. The Parukutus were suspicious of the Chikenas from the beginning of their contact. They feared they would blow upon them and cause some kind of ailment; hence, in order to test their friendship when they came together to trade, they always required the Chikenas to engage in a wrestling bout. Excitement ran high at one of these matches and the Parukutu contestant unintentionally killed his adversary. Since then the tribes have never met to trade, and kill one another when possible. The last Chikena to be killed had lived only a short distance below Tcara Nawa. I spent a night at his old place while waiting for Ogilvie and our boys to catch up with the canoes. I had gone across country with some Indians to hunt. Fleas had taken possession of the house, compelling us, when we rushed in for shelter from a fierce storm, to rush out again and to build our own shelters.

We thought our guides expected to follow down the Kaitcana to the Apiniwau but after three days we came to a short bend in the river where we buried our bark canoes out of sight in the deep water, got away into the forest without leaving a trace on the bank and crossed the mountain to the Ponama River, where we made other canoes and went down to the Apiniwau. We had reached the region of their old enemies and it was unsafe to go into their territory.

MIŇAI ULUD

At the mouth of the Ponama on the Apiniwau we found some very well built small houses and evidence that a party had spent the night there very recently. Our guide had not visited this region for many years but was sure the old Parukutu village was just above us on the opposite bank of the river. We found the abandoned place grown up in good sized trees. There was no way to determine whether the people had moved up stream or down, but we soon discovered that the party which had camped at the Ponama was travelling up river and that it had not returned. They were carrying sugar cane for food, and the chewed pulp was scattered over the rocks at the rapids. When an Indian reaches a portage, he unloads and takes his canoe over first, then carries over his baggage and places it in the canoe. Any refuse is thus left at the unloading place and it was easy for us to tell that the party was going up stream and that it had not returned. The amount of bleaching of the chewed cane told us how recently it had been thrown away.

We knew thus that somebody was not far away and we followed up. We came first to the unoccupied Katawian village, then an abandoned village and clearing of the Parukutus, but the evening of the third day we found the village of Miña Ulud on the left bank of the river. Lat. 1° 23′ N., Long. 57° 8′ W., elevation 500 feet.

Our Reception

It had been our custom when nearing a village to stop and allow our guide to go in alone and tell the people strangers were coming. The rest of us would have a bath and clean up. The boys would smear their bodies, paint designs on their faces, oil and comb their hair, while the best Ogilvie and I could do was to shave and put on clean clothes. We always envied the Indians their neat appearance at such times. When the guide would return after an absence of an hour or more he would lead us in. Each would gather up a club for the dogs and when we neared the houses our guide would blow his flute, made of jaguar bone, if he had one, and we would all give a loud yell. The dogs gave the only response. We would line up in front of the chief's door with our packs on our backs. The chief would then come to greet us, after which we could take off our packs and sit down. Then all the other members of the tribe would come and say a word of greeting which amounted to about the same as our own "How do you do?" The women would very soon set out some refreshing drink, and later, after we had been taken to the men's house where we put up our hammocks, they would each bring out a bowl of food. Some places the men of the village would join us; at others we ate first. Etiquette required one to squat at the food bowl, help himself, move back without rising and up again if he wished more, and when he had finished to rise. Any food served to one must be eaten or carried away. Our Wapisiana boys, quick to recognize the proper observances, often prevented us from making mistakes. After the first meal at Tcara Nawa, I attempted to rise from the food bowl when my boy touched my arm and called my attention to some fruit I was leaving behind.

Many times a village is built on some side stream near the river or a short distance back from the river bank. One might easily pass the entrance to a village without noticing it. So it was necessary for us to have a canoe follow each bank and look for entrance and landings. Our guide was in advance and sighted some people ahead. He signalled us to cover and went on to the landing place. We waited for a short time and then went in. The village was some two hundred yards back, with a trail leading through the dense forest. As we came out of the trail into the village we found eight men lined up with their bows and arrows ready to shoot, and in front of them the chief with a large highly polished knife in his hand. It was a most formidable looking array of men and arms. We had taken the precaution to leave behind in the canoes our guns and bows and arrows. The chief with his knife waved us aside to some logs, where we sat with our backs down the hill, facing the men. Everybody seemed wildly excited. The dogs were barking, the children crying and the women running about talking fast and loud, but the men never said a word nor took their eyes from us nor put down their bows. The chief alone showed composure. The chief did not come forward to greet us according to custom, but instead he sent his two daughters one after the other to greet us. Each one stopped just a moment in front of each of us and gave the usual greeting, while the men with their arrows, looked on ready to do their whole duty if any false move were made on our part. When the dogs quieted down, our guide, whom the chief had visited about a year before, began to tell the chief all about us, that we had come through the other tribes and that we were all right. After a while the chief sent a man to get some sugar cane for us to chew. Another was sent to meet the hunters who were coming home. Thus notified of our presence they came in without nervousness and sat down in front of us while the chief told them about us, pointing at us with his big bright knife, as he spoke of the one and the other.

At the end of two hours the women had made two cakes of cassava bread and boiled a monkey which they brought to us. When we had finished they brought another pot and some bread to our three guides. Toward evening the men sat down and laid their bows and arrows aside. The chief told us where we could camp, and our boys cleared away the brush and put up our shelters near the river. Seven men came down from the clearing bringing dry wood for our fires and sat about until after dark greatly interested in us and everything we had.

MOURNING

We had brought with us a half blood Taruma whose father had been with Schomburgk when he descended the Apiniwau in 1843 and had remained with the Parukutus. Fortunately for us his father had taught him to speak Taruma and our Taruma boy, Cyk Tow, could speak with him. As boys this man and the Parukutu chief had been great friends, they soon became very intimate and spent all their time together.

Shortly after dark we heard a most peculiar noise coming from the direction of the village. It reminded me at once of my boyhood days when I used to attend negro camp meetings and heard the preacher praying with all the brethren joining in at intervals. Coming so soon after our spectacular reception, I must say that I was more than interested. We soon understood it all—the Indians were wailing for the dead. It was one of the most impressive ceremonies I have ever witnessed.

It is the custom among all these tribes to mourn publicly for their dead, not only at the time of the death and burial, but for a long time thereafter. When any friend comes along they tell him of the death of the member of the tribe. All work stops, the women sit in their hammocks quietly crying, while the chief or some intimate friend recites the story of the death in great detail and tells what a good person he was and how much he is missed. All the men wail and cry aloud. As we heard it in the night at our distance it was most mournful, yet at the same time very musical. It continued for twenty minutes and stopped suddenly; the women turned to their work again and the men began to talk of other things. It was the presence of this old friend that started them off. I was for once at least glad he came along. I had heard the wailing of a few before, but this was the only time I ever witnessed a whole village taking part in the ceremony.

Sick Child

One evening we chanced to see a method of treating the sick. A mother brought a child about a year old to the chief to be cured of some ailment which seemed to be a mild congestion of the lungs. After looking the child over the chief gave directions for others to put stones in the fire, to bring an empty cooking pot and a gourd of water. He lighted a long cigarette which he smoked vigorously, blowing the smoke through his hand upon the head of the child. Occasionally he would open his mouth wide and blow saliva over the head and upper part of the body and finish by blowing noisily; shoo, shoo, shoo. Then he sang for a few minutes a low soothing song; went over the child with a palm leaf brush; blew more smoke; took two small pebbles from his shoulder basket and rolled them under his palm over the child's chest and back, chanting his incantation all the while. When the stones in the fire were hot he put them in an empty cooking pot, poured water on them and held the child in the steam. Two men and the mother kept busy chanting and fanning the steam with their hands against the child, ending the effort with the same shoo, shoo, shoo. Then the chief poured warm water over the child, smoked upon it again and the mother took it away to her hammock. The whole performance lasted two hours. I thought at the time if the child could survive the treatment he would probably recover, but we left the next morning and did not learn the outcome.

POLYANDRIA

The father of the sick child had expected to go away with us but when the child took sick he said he must remain at home. Then we learned that he and his brother were living with the same woman in a house by themselves. This was the only case of polyandria we heard of among the interior tribes. Ogilvie said that he had observed two brothers living with one woman among the Wapisianas. There is a scarcity of women among the Parukutus and this fact served us a good turn. It was eleven days to the Diau village we wished to visit—a long journey for a return trip. A fine looking young fellow volunteered to go with us because he wanted a wife and there was no one eligible for him among his own people. He had been given a little girl but she was too young to be married for several years yet. He went with us and we hope he was successful in finding a desirable mate.

DEPARTURE

We found nothing new in the way of material culture among the Parukutus at Miñai Ulud. They had good bows and arrows but nothing else worth carrying away. Their pottery was rough and undecorated, their baskets of the roughest patterns, and their houses were mere shelters with no evidence that anything better was contemplated. At their old village they had had the usual large round communal house and a visitors' house near by. We remained for several days making observations, taking photographs and physical measurements. The people after the first introduction were very kind to us. Their cassava was too young for making good bread, but they had plenty of sugar cane which the chief sent to our camp in abundance and for which he would not accept payment. However, when we were ready to leave for our long journey to the Diaus, he had his men fill our canoes with every stick they would hold and accepted payment for it. We had eaten many times that amount while we were in camp, but then we were his guests and must accept his hospitality. The chief also exchanged two good canoes for our old ones accepting the difference in value.

VOCABULARY

ENGLISH—PARUKUTU

apron	kĕweyon
apron, loin	katami
arm	oyafula
ashes	wesualuma
baking pan	elyafo
bark design	waiyama
bark ornament	wauku
basket	yamata
basket, design	kamali
basket design, inner	halamato
basket, pack	kumbiyati
basket, shoulder	pakali
bead	cau
beard	oyatoitci
bread	tcoola
cheek	ofetalika
chin	oyatatcile
cigarette	ileyamato
cooking pot	hĕlyamo
cotton	maula
cotton string	maulama
dog	cĕfia'alĭ
ear	walwau
ear	ofanali
eye	oyoola
fan, fire	oyafomsa
fire	witu
firestone	oloowa
foot	oftati
foot, sole	otcohale
forehead	oyefilituk
flute	wawarari
flute, double	matawi

hair	omŏsta
hair, body	oyakotci
hair in queue	kĭlitcitci
hammock, cotton	liweitai
hammock, fibre	cilao
hammock string	akokiwa
hand	oyamayelida
hand, palm	oyamuklila
house	mimu
knee	oyasagul
knife	jakĕri
knife, tusk	maliya
lap breech cloth	maula'anola
legband	holyafoloka
leg, lower	ohilyafu
leg, upper	ofeitu
lip, lower	omatafitcu
lip, upper	ofalolitcu
nail	oyamacicen
nose	oyowanali
salt	wa'ahu
sieve	towa
stool	mĭleli
strainer	kwasi
sugar	waimimu
teeth	koyali
tobacco	komacalili
toe	ayalicucen
tongue	kamaculi
wood tick	komacpa

CHIKENAS

The Chikenas live below the Parukutus on the Kaitcana River and in the interior to the southward. Their blood feud with the Parukutus has already been described. They appear to be very warlike, as they recently destroyed the whole village of Katawians on the Apiniwau. One man was away from home and thus escaped. We saw three members of the tribe at Miña Ulud, one man and two women, from whom we obtained the short vocabulary here recorded. From the language, physical type and culture the Chikenas would appear to be very closely related to the Parukutus. (See Plate XVII, B and F.)

VOCABULARY

English—Chikena

arm	yaholĭ
arrow	klaho
arrow shaft	pelawa
aunt	kitĭ
back	wĭkaru
breast	prohulu
bow	plagma
boy	milemigona
cane	pălemĭtana
canoe	wiyĕhi
cassava bread	aiha tekĕnama
chest	wĭrohulu
child	imeli
daughter	milesĭ
dog	awali
ear	penali
eye	yanunru
father	yumu
finger nail	yamaskita
fingers	yamiyĕlĭ
fire	wihala
foot	pohuya
grandfather	amu
grandmother	wi
hair	pohotci
hammock	maura
hand	yameliyanĭ
leg	yacila
lips	yaspili
man	soto
moon	imno
mother	isano

nose	yinare
paddle	tanaklo
patella	samulu
plantain	halulu
shoulder	motalu
side	karana
sole	pohuyawana
son	milelĭ
starch	taci
sun	sesi
thigh	solipĕta
toes	pohuyalana
tongue	nubu
tooth	yoli
uncle	wohikĭ
water	tuna
woman	wolesa

NUMERALS

1. wĭnali
2. asaga
3. sorawau
4. misolo
5. inmo, soloni
6. inmowĭnali
7. inmonasala
8. misolosaga
9. misolinmo
10. soloninmonasala
15. inmosorawau
20. misolinmo

KATAWIANS

The Katawians are said to be a sub tribe of the Parukutus and live just below them on the Apiniwau. They speak a dialect of the same language and have the same culture. We saw but one man and he was so different in appearance that he at once attracted our attention. He had the best carriage and the best physical development of all the men we saw on our journey. He had a broad very deep chest, broad lower face, broad frontal and long head (Plate XVII, F). His wife was a Chikena. His physical measurements will be found in the tables.

TONAYENAS

At Miña Ulud on the Apiniwau we found a young man with his wife and baby who had come from the region east of the Honawau River a long time ago. He had forgotten his former language which he said was entirely unlike Parukutu. His peculiar appearance led to our inquiries about him. He had a very flat upper face, broad nose, thick lips and projecting face—all negro characteristics yet he was not negroid in color or appearance. His wife (Plate XVII, C) had a very narrow lower face.

THE DIAUS

At the second Indian village after crossing the Acarai Mountains into Brazil we found a knife bearing the name of a French maker. This informed us at once that the trade route led across the divide to French Guiana, whereas we had hoped it would lead to the Amazon River by way of the Trombetas. When we asked the Indians where the knife came from and who made it, they told us the Diaus made it and that they lived a very long distance to the northeastward, but no one had ever seen a Diau. As we travelled from one village and tribe to another we heard more and more about the Diaus, the people who made all knives, beads and everything they possessed of foreign manufacture. One old Parukutu had travelled a whole moon in an attempt to reach the country of the Diaus. We asked him to go with us, but he declined saying he would die of old age before we could reach them. At last when we arrived at the Parukutu village on the Apiniwau we found five Diaus—two men, two women and a baby. They had come to invite the Parukutus to a dance at their principal village eleven days' journey away. That is, the men and women came for that purpose; the baby was born en route; but it should be added he did not delay the journey. The four camped on the river bank one night, and in the morning five were ready to push off at the usual time.

The first thing we asked the Diaus was, "Do your people make these beads and knives?" They said, "No, we get them from an old trader who comes to our dance every year from his home a moon toward the rising sun; his people make them." They told us we could spend a few days there and then have time to reach the dance before the trader returned. They had brought with them a knotted string and were untying a knot each day so they knew just how many days were left. One of the men volunteered to take us to his home. The others remained behind to finish their visit and to return at their leisure. A young Parukutu went along with the Diau in his canoe.

TCALIO

From the Parukutu village we descended the Apiniwau, for four days, ascended the Honawau[1] and the Iliau seven days to the first Diau village, Tcalio, or bamboo place, where we arrived March 5, 1914. A short distance below the landing we passed a large newly planted clearing with several small shelters.

Tcalio is built on high land a quarter of a mile from the river, in the midst of an old clearing which is now overgrown and no longer cultivated. This village consists of four large shelters and four well-made round houses. The largest one, 25 feet in diameter and 25 feet high, had a canopy covering the smoke hole and an inverted cooking pot closely fitting around the pole over it; high above, on top of the pole was the usual Brazil nut. All the houses were covered with palm leaves running vertically.

While we were making camp at the river our Diau companion went up to the village and told the chief about us. As soon as our camp was finished we joined the Diau and the Parukutu, entered the village and lined up in the middle of the plaza. The old chief was very infirm and came out slowly leaning on two staves, talking as he came. As he stopped in front of us he put out his hand for a long shake saying "me kum bai." The three women also came and shook hands but the two other men only spoke a word of greeting. The four children came with their mothers, but were too timid to shake hands although their mothers tried to persuade them to do so. All the other occupants of the village were away at the dance. This was the first time that any of the Indians offered to shake hands with us and was evidence that some one of the tribe had been in contact with the negro rubber gatherers over in the Guianas.

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[1] The mouth of the Honawau is in Lat. 1° 8′ N., Long. 56° 41′ W. and at an elevation of 460 feet. Below the mouth of the Honawau the river is called Kaphu. At five different places along the Honawau, we found petroglyphs, the first we had seen since leaving the Essiquibo. See "Some South American Petroglyphs," Holmes Anniversary Volume, Washington, 1916, p. 91.

Greetings over, we applied ourselves to the food which had been brought out before we arrived. While on the journey Ogilvie and I usually sat down together to eat, while our four boys sat apart. This had been noticed, and here for the first time a separate bowl with other food had been prepared for us a little removed from the others. When we were leaving for camp they gave us some cassava bread and Brazil nuts to carry away. Later the boy brought bread and bananas to camp.

Evidently this was a very old village. The central plaza was kept clean, but the forest had reclaimed the fields and trees, and vines were growing close against the houses. We found little of particular interest. We met the same courtesy here we had met all along the way. The material culture was the same. Their cooking pots and drink bowls were rough and undecorated. The hammocks were made of palm fibre and the baby carriers of bark. The dogs were the poorest lot we had seen, but we later learned that the best ones had gone along to the dance. There were three roosters and one hen but no other pets. As in other places the chickens were kept as song birds—neither flesh nor eggs were eaten. The food supply consisted of cassava, plantains, bananas and papayas. There were no potatoes, sugar cane, beans, or squashes. It is interesting to note that we found the common commercial variety of banana at the Waiwé village on the Pudawau but nowhere else.

TCALIFONA[1]

One of the Diau men who had gone to the next village to tell the people gathered there for the great dance that we were coming returned to pilot us over. Our Diau companion was suffering from an outbreak of boils and unable to go with us. We were sorry, because he was a good fellow and had expressed a desire to continue with us to the Wakeras in the east. The three other Diaus and the Parukutu went along to Tcalifono on the Itoto River, a branch of the Walakioku, where we arrived the second day. As the chief already knew that we were coming, we marched into the central plaza without announcement. The chief and four principal men came to greet us, offering their right hands and holding on for a long time. Then every man came and shook hands, with a word of greeting. The women, preceded by the chief's wife, came along and shook hands also. They had us sit down on a low log in the hot sun, while all the people came about to see us. Drink was furnished immediately, and a little later plenty of food. The people showed no excitement but more curiosity than any others we met. They looked us over and talked about us and our possessions for the rest of the afternoon and then came to our camp in the evening to see us there.

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[1] Tcalifona is in Lat. 1° 50′ N., Long. 56° 42′ W., with an elevation of 600 feet.

It was impossible for us to tell how many belonged to the village but there were present twenty one men, fourteen women, eight children and fifty one dogs, but no roosters. There were three circular houses and one square one besides the common drink house, built around an open space one hundred feet across. The chief's house, forty feet in diameter and twenty feet high, had thatch reaching to the ground while the others were set on posts five feet high. The visitors' house, where we were entertained, was a hundred yards away. The village was surrounded by a great clearing of fifty acres or more, all planted but under very poor cultivation.

Dress and ornament here were practically the same as among the Parukutus. The men wore the breech cloth and tucked it up on the right side as the Parukutus on the Apiniwau do. They wore the narrow woven leg band above the calf and a coil of palm leaf as an anklet; bead necklace and armlets and Brazil nut bracelets on the right wrist. The left wrist among all the tribes was left free because a bracelet would interfere with the bowstring. There were many white shirt buttons worn on the strings with the beads. Women may wear about the same bead ornaments as the men, but few take the trouble to do so. They wear the beaded apron with a fringe of nuts. The hair of both sexes is cut across in front and allowed to hang loose down the back. A few men wear the queue or hair tube and take proper care of their hair, oiling and combing it regularly. Both sexes paint the body red all over, and the men sometimes paint designs on their faces and bodies. Their cooking pots and drink bowls were crude and undecorated. The old trader who had been to see the Negroes had his hair cut and wore a felt hat, and a shirt with the sleeves tied around his neck and the tail hanging down his back.

DRINKS

The Diaus make the same fermented drinks by the same methods as already described among the Waiwais. For this great dance it was necessary to make it in very large quantities and store it until ready for use. Two logs had been hollowed out to hold about a hundred gallons each. One was filled and covered with leaves then three days later the other was filled as the first one was ready for use. The logs were raised on a framework in a little house built for the purpose. The amount of drink used was amazing, as was also the ability of the men to throw it up at will and drink more.

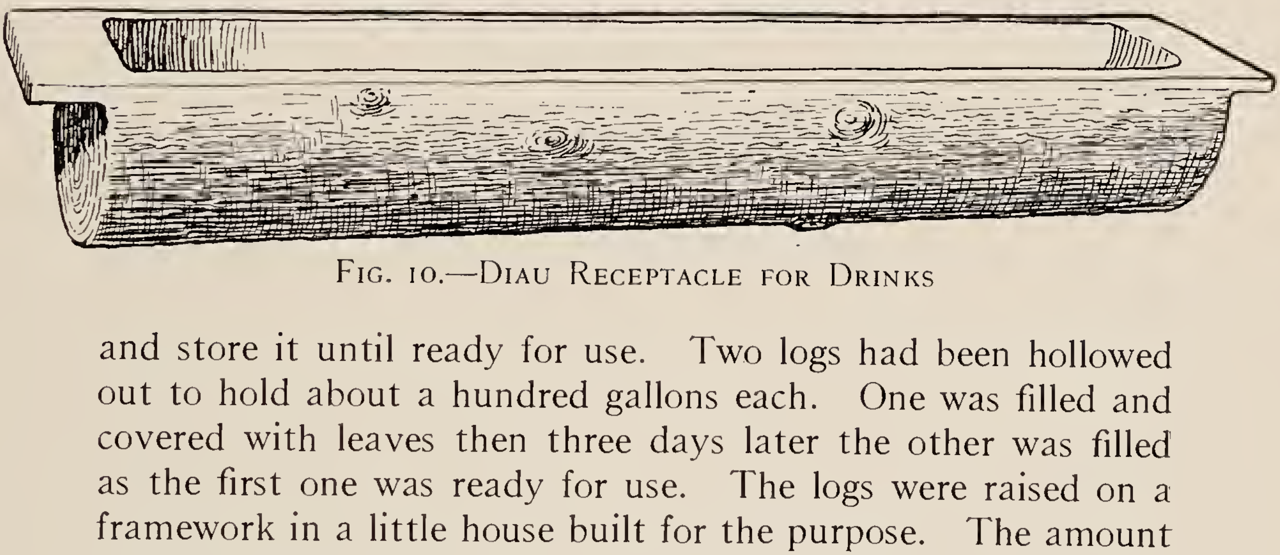


FIG. 10.—DIAU RECEPTACLE FOR DRINKS

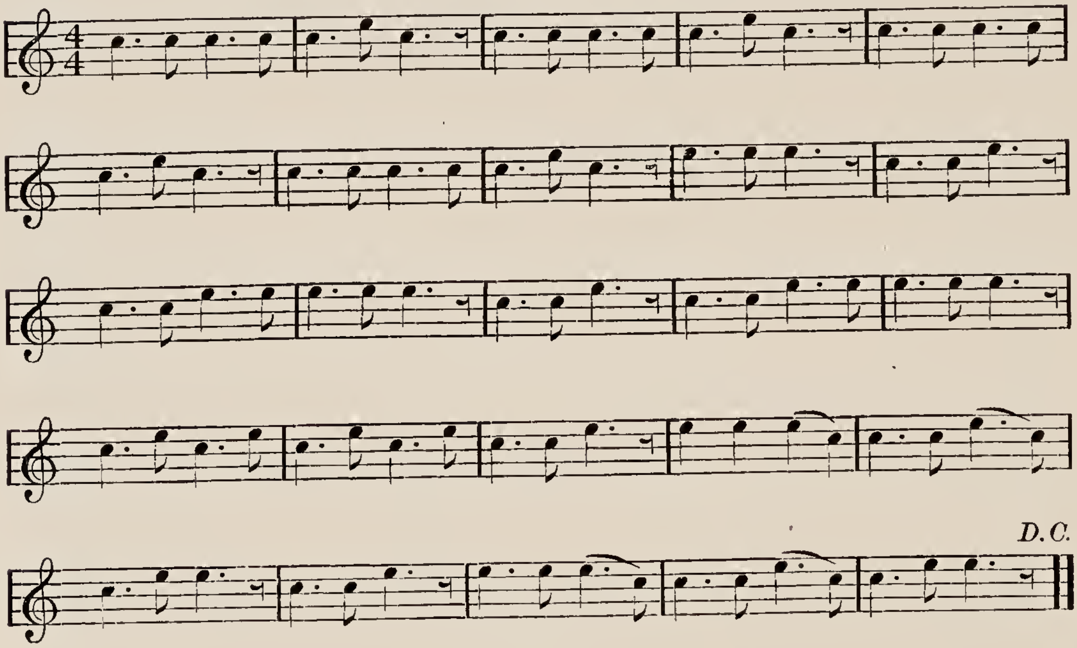
DANCE

The dance had been going on for ten days or more when we arrived but continued with enthusiasm for two nights longer. It was threatening rain the first night, and we did not go down until we had heard the dance going on. We arrived just in time to be caught for an hour in a thunderstorm. We ran into a large house where there were seven fires going. Most of the women were in their hammocks while the men were sitting about in small groups talking and laughing quietly. When the rain was over we returned to our hammocks as it was too late and too wet to continue the dance. March 9th was a beautiful moonlight night and we were on hand early for the dance. We sat about the plaza or dance ground for a long time. Then the women brought two large drink pots holding about three gallons each and placed them in the centre of the plaza. After another long wait the master of ceremonies, who was not the chief, walked to the centre and gave several loud inarticulate yells. A man came and sat on the north side of one of the bowls of drink and a woman came and sat facing him on the other side of the bowl. Each assisted the other in holding the bowl for a drink. In like manner another man and woman came to the other bowl, the man this time on the south side. Seven women came and stood around the second pot. Three men carrying a pole twenty feet long now came in from the north and rushed around the plaza with yells and shrill whistles, stopped at the north and turned the other way singing while the leader kept time with a small gourd rattle. Another man joined the group carrying a ceremonial club on his shoulder and smoking a cigarette fifteen inches long. The other two men carried clubs as staffs and sang, accentuating the rhythm with a heavy thump of the right foot on the ground. They advanced, then retreated with side-steps and advanced again. While they were dancing men and women came to drink, the two guardians of the bowl holding it up for them. The dancers would advance toward the drink and retreat, at last the leader would go with the end of the pole to the bowl and drink while the others sang and drank in turn. When both bowls were empty the dance stopped until they were filled again from the reserve supply stored in the troughs. Next time four men holding the pole rushed around the plaza and were joined by two more men and seven women; the men holding with the left hand, the women with the right. Then a large man appeared, smoking a long cigarette and carrying a staff. He acted as a clown and followed behind the dancers with the pole. At intervals the leader would turn quickly with the pole and chase the clown. The men assisted the leader, while the women tried to protect the clown. The long pole with the women holding on one side made quick movements rather difficult, and the clown was never caught; yet he had many narrow and noisy escapes. The leader appeared very thirsty and would often advance to the pots for a drink, but rush away after the clown before he or the women could drink. Then he would rush into a house, the clown always following; if they found nothing to drink they soon backed out and rushed away at the clown, the drink pots or into another house. Once they found some drink and the women were able to pass some back to the clown before the leader could prevent it. Once when the leader charged the clown and was on the point of catching him two women caught hold of the leader but were dragged loose as he rushed. Occasionally the dancers would cross or dance on the sounding board. The leader carried a gourd rattle for keeping time to the music and the dance. The men and women all sang while they were dancing and while standing at the drink bowls. The women all wore the bell nut aprons which assisted in keeping the rhythm and added to the music. The men wore the same kind of feather headdress and other ornaments as we found the Waiwais wearing in their dances. In another half-hour the drink in the bowls was exhausted, and the dance stopped. Neither the clown nor the group of women joined in the third dance but stood together near the drink. About ten-thirty the leader, showing weariness, stopped the dance and all retired for the night. As we had no interpreter we could not understand the whole performance.

Dancing Board

There were two dancing boards set in the plaza near together, one six feet across, the other about half the size. The large one had been set recently. The notch, which is found in all of them, was six inches square, opening into a hole three feet deep. The board was made of the flat root of a tree, hewn down until it was two inches thick. The sound produced when dancing or wrestling upon it could be heard for a long distance. Our Parukutu companion had his whipping and wrestling match the first evening after we arrived. As our boys were travelling through and not stopping over they were not expected to show their good will by wrestling.

Sung by the Diaus in Their Dances



Music

The Diaus are not much given to music. Both men and women sing at their dances but we heard no music at any other time. Words were used but there appeared to be a great many nonsense syllables, often the music was simply hummed in a low voice.

We have no photographs from Tcalifona fit to publish. Our plates and films were more than a year old, and besides we were unable to develop the plates for several days, when they were found practically worthless. A word about photography may be of interest to those who work in tropical fields. We carried our plates and films in sealed tins, opened them as needed and developed them the same night. We used hardener in developing and fixing bath but the water was sometimes so warm the gelatin would slip off when the plate was set up to dry and it became necessary to dry the plates over the fire. Some of the best photographs here published were made from Ensign films a year old. After costly experiment we found the Hammer and Wratten and Wainwright plates the best for tropical use. We got satisfactory results with Hammer plates that had been for three years in Para at the mouth of the Amazon, but they were unsealed, exposed and developed the same day.

VOCABULARY

ENGLISH—DIAU

Adam's apple	yilala
arm	yipŭdi
arm, upper	yifodĭ
arrow	pĕru
arrow, poisoned	klaho
axe	wawŭ
baby carrier	wĭñibu
back	yingadĭ
bamboo	tcalio
basket	wapa
bead	kalala
beads	tcamera
beard	yehoti
bell	urouro
belly	yiwagĕru
book	tambita
bow	urapa
bowl	fĕletĕ
breast	yimanitĭrĭ
breech cloth	maulu
Brazil nut	toka
breath	yiyĕntibodĭ
buttock	yihotigĭrĭ
button	konopu
calabash	kaliwa
calabash tree	kadiwa
cane	pĕlema
canoe	kanau
capabara	kamenari
cassava press	matadĭ
cheek	yifihot
chest	yiropidĭ
cigarette wrapper	tigu
comb	hănkai

cooking pot	kaidĭ
curari	urarini
curassow	oko
dance (*n.*)	idĭka
dance (*v.*)	tiwai
dance board	tĕpa
dog	yeki
done	naka
door	yatĕlĭ
drink	komu
drink bowl	maka
ear	pana
ear ornament	kui
eye	yenoro
eyebrow	yeyairi
eyelash	yenahote
feast	kasiri
finger	yiwaigĕtogo
finger-nail	yiwaidĭ
fire	mato
fish hook	kewi
fly	sĕdĭ
foot	yipu
forehead	yifetĭ
gum	palata
hair, body	wakĭ
hair, head	yipotabodĭ
hammock	waitŭpi
hand	yiyadĭ
heart	yidedĭ
hole	yota
house	muramura
knee	yiwadena
knife	mălya
knuckle	yewĕgĭto
leg	yidafadĭ
leg band	kaluta
lip	yifidĭ
lizard	wana

macaw	kalaliwai
match	mato
malleolus	yimanugo
man	asega
mirror	wĕni
mouth	yentali
mouth organ	kĕmkemino
neck	yipomidĭ
negro	mekĕr
nose	ona
paca	paku
pack basket	katadĭ
paddle	por or poi
palm	yinyalifidĭ
paper	pămpita
paper	tampiro
path	aima
pencil	idĭka
penis	yirokilĭ, yilokĭ
penknife	apenikeremitcĭ
pirai, fish	poni
pin	akutca
pitch	mani
plantain	aparuru
plantain, ripe	aparurukaiña
poison box	yama
pulse	yiyanĭdĭ
razor	kĕlimitcie
salt	tcatu
salutation	tunaiyena
salutation, reply	katauyena
scissors	tcarata
seat	mukŭti
shoulder	yiwatĕrĭ
side	yiauterĭ
sieve	manarĭ
sieve, high	manadĭ
sing	ademi
sleep	maniyĕmba

smoke (*n.*)	alĕnta
smoke (*v.*)	tiga, tigatiga
snore	tănia
sole	yita
starch	pankufa
stars:	
Aldebaran	otoiramita
Canis minor	adima
Canopus	rutula
Capella	yanema
Gemini	tcidiga
Mars	manati
Orion	yero widie
Pleiades	mumŭ
Pointers	iwana
Procyon	mawa
Southern Cross	makwi
stone	tĕbu
sun	wi
tapir	paii
themselves	makeromatĭ
thigh	yipetĭrĭ
throat	yifihoti
tobacco	tĕka
tobacco wrapper	komătcu
toes	yipuyipu
toe-nail	yihuyakĭ
tooth	iye
tongue	yinolidĭ
toucan	yabiku
tree	awa
trough, drink	kudiyĕli
umbilicus	yiponĭ
water	tuna
what is it	kĭnĕ
wife	amari
woman	kufeyu
woman, married	wĕrli
wrist	yimegano
yawn	tcĕntĭpui
yell	pĕlekola

THE WAKERAS

The old trader we met at the Diau dance said his tribe, the Wakeras, lived twenty eight days', or a moon's journey, to the northeast. He invited us to go home with him and we started to do so when the dance was over, but he travelled very slowly, and the fifth day one of his wives became sick with fever. He decided to camp at an old field for a few days until she recovered. As our medicine was about gone and we were also having fever, we thought it best for us to get out of the country the quickest way possible.

The second day from Tcalifona we crossed the low divide between what proved to be the Corentine and the Amazon in Lat. 1° 55′ N. and Long. 56° 45′ W., at an elevation of about 700 feet. The old trader kept telling us along the way, of a hole in the forest, and we thought he meant a lake; but when we reached it we were surprised to find a flat outcrop of granite a quarter of a mile across right on top of the divide. We should like to recommend that this be made the corner between the two Guianas and Brazil. As Ogilvie and I were the first whites to cross the divide at this point we named the rock Farogle. The distance from the canoe landings on the two sides of the divide is about four days on foot over rolling land not more than a hundred feet high. I shall never forget the day we crossed the divide—it was the day of my first attack of fever. As I walked along carrying my pack my teeth chattered until one would have thought I was crossing the Andes and suffering from cold and siroche.

We camped on a small stream which was flowing north. Our guide said it went on in that direction forever and never came back; that it flowed into a river so large the eagles and parrots could not fly across it and that its water was so thick a canoe could not be paddled in it until the sun was high. We asked him if he had ever seen the river; he replied, "No, all the rivers I ever saw had another side to them, but this one has no other side."

We built two bark canoes and for twenty six days worked our way down the difficult and dangerous rapids until we met some negroes below the Great Falls who gave us some rice and beans and told us that we were descending the Corentine River.

KUMAYENAS

The Kumayenas live on the Karape River, an eastern branch of the Cutari or Upper Corentine, called Sipaliwini by the natives.

A dead tree had fallen across the mouth of the Karape and we should have passed without noticing the river but for the fact that one of our boys observed some vines hanging from a branch into the water in an unnatural way. Upon investigation we found two bark canoes lying on the bottom of the river. Thinking there must be a village near we entered the river and after going a short distance found an old camping site and a trail leading away into the forest. Following the trail for three hours we came to a village of several houses occupied by five men, five women and two children. This was the worst looking outfit of houses, dogs and people we saw anywhere. The houses were mere tumble down shelters in an old grown up field. The people had no cassava or bananas and no stored food of any kind except a few nuts. The men wore ragged breech cloths and the women, with one exception, had only fragments of aprons. They had no ornaments of any kind.

There were trails leading farther into the forest where there must have been other villages but we did not have time to visit them. This we thought might be the stopping place on the way to the river, but why are the people so poor? We could not speak their language and hence got no information concerning them other than what we could observe. We camped over night, took photographs, made physical measurements and got a short vocabulary.

These people had not been visited before so far as we know. Schomburgk says he found no Indians in this region. See Plate XVIII, A–C and tables of measurements.

VOCABULARY

ENGLISH—KUMAYENA

arm	yipadĭ
back	yimotadĭ
belly	yimonidĭ
buttock	yikono
calabash	moda
chest	yiropudĭ
chin	yiramata
curassow	oka
dog	kaikwi
ear	pana
eye	unu
finger-nail	yimoiti
fire	mato
foot	yipuru
hair, body	yami
hair, head	putuba
hair, lip	ahoti
hair, pubic	amu
hammock	aiketci
hand	yinyadĭ
index finger	yinabĭlĭ
leg	yidaɒadĭ
lip	yipolĭlĭ
little finger	akamidĭ
moon	nuna
mouth	yingolĭ
neck	yitarĭ
nose	auna
pack basket	katodĭ
ring finger	akoroni
river	supariwini

shoulder	montadĭ
side	yautadĭ
sieve	manadĭ
sleep	wanunĭ
snore	tania apĕra
sole	yitadĭ
sun	uwi
teeth	ye
thigh	yipĕtidĭ
third finger	akoro
throat	yidolĭ
thumb	itamiru
tobacco	tegu
toe	akamĭdĭ
toe-nail	yimadĭ
tongue	yinodĭdĭ
water	tuna
white man	panan akĭdĭ
wife	wedi
woman	unami

URUKUENAS

At the Kumayena village on the Karape River in Dutch Guiana we found two men and two women who belonged to the Urukuena tribe of the more remote interior. From a comparison of the vocabularies obtained it would appear that these two tribes are very closely related linguistically. We were unable to get any names for the numerals. When counting they touch each finger and say *wanina*. Leaves were counted in the same way, the number of leaves corresponding to the number of fingers but only one word used for the whole process.

We were impressed with the powers of concentration exhibited by the older man. The dogs had announced our presence and we had yelled, as is the custom many places, so they knew even before they saw us there were a half dozen in our party. The first shelter we passed as we entered the village was occupied by this man. He was engaged in making a pack basket and continued his work, without even glancing up, until it was finished a half hour later, when he displayed a proper interest in us. He had not seen a white man before.

To an outsider these two couples would appear to be wrongly mated; the old man has a young wife while the wife of the young man is old enough to be his grandmother. This woman was the only one we saw in the interior who had short hair. Her young husband has beautiful fine wavy hair. The extraction of the eyebrows gives the men a peculiar expression, as it tends to emphasize rather than to conceal their very prominent superciliary ridges, and this renders them rather ferocious in appearance (Plates XVIII, B–D).

VOCABULARY

ENGLISH—URUKUENA

arm	yipudĭ
arm, lower	yimeguna
baby carrier	tanatap
belly	yiwagolĭ
Brazil nut	toka
bread, cassava	turukĕ
buttock	pĭputulĭ
canoe	kanowa
cheek	yimbatali
chest	yirobilĭ
chin	yinamatilĭ
curassow	tiyokokĭ
dog	tukuge
ear	yipanada
eyebrow	yinaidĭ
finger	yiuya
fire	mato
foot	yipuru
hair	potuba
hammock	tĭkakĕ
hand	dĕnyarikidĭ
house	murumuru
knee	yiwedenalĭ
leg	yiedĭ
lips	yiepidĕ
moon	nunagĕ
mouth	yinko
nail	yimoidĭ
neck	yipĕmoli
nose	yiona
one	wanina

packbasket	těrataiga
paddle	pokwita
plantain	tiaborurake
shoulder	yimotadĭ
sleep	namayemba
sun	uwi
thigh	yibetĭ
throat	yiro
tobacco	tega
toes	yifuigedĭ
tongue	yinolida
tooth	yieda
trail	temakĕ
water	akomoki

APALAIIS

I had hoped to visit the Apalaii Indians on the Paru River and made an attempt to do so, but it proved the wrong time of year to travel on that river. As it was impossible for me to return at the proper time, that is, when the rubber men were going up as far as the falls, I arranged with Mr. C. N. Unckle, an ethnologist temporarily associated with the Goeldi Museum, to have him visit the Apalaii, make collections and study their culture. The following account is based upon his report.

Mr. Unckle joined the rubber gatherers on the Paru and spent the whole month of August in reaching the first Indian village, where he remained for six weeks living, travelling and trading with the natives. He suffered severely from lack of food and from fever but was unable to leave until the rubber men returned to carry him out. He reached Para more dead than alive but with a splendid collection which he had made during the early days of his visit. Thanks to the Indians who accompanied him down river the collections were saved in a perfect condition. The delicate specimens of pottery were wrapped and tied up in palm leaves so perfectly that not a single one was broken. The great feather headdress was demounted and the feathers placed in bamboo joints to protect them from the insects and the elements. While Mr. Unckle was not able to travel among many villages or to see many of their ceremonies he made a very good representative collection of their handiwork and recorded much of their language, customs and traditions. He greatly regretted that his photographs were a complete failure, due to climatic conditions and illness. The photograph in the MUSEUM JOURNAL, Vol. X, No. 40, showing house types, is the only one of ethnological value saved.

Mr. Unckle was the third scientific traveller to visit the Apalaii. Mr. J. Crevaux went across from French Guiana and down the Paru in 1883, and Mr. C. H. de Goeje in 1906 went up the Tapanahona and down the Paru, but neither of them gives much information concerning the people they met on the way.

The Apalaii occupy the middle course of the Paru River for a degree or more on either side of the equator. In earlier days they came down to the Amazon, but the presence of the rubber man has driven them beyond the first falls. Their nearest neighbors on the north, or up river, are the Roucouyenne, who are also members of the same great Carib stock. No one has travelled across country through northern Brazil, hence it is not definitely known what tribes occupy the territory in the interior away from the rivers. Here is a splendid opportunity for some one to do a very important piece of exploration—to follow the equator from the Rio Branco to the Jary and thence northeast to the mouth of the Oyapock—a distance of a thousand miles. There are reports of great savannahs, but no one knows their location or extent. A few years ago a concession for several million acres was obtained from the government and a great company formed to stock the lands with cattle. A party of engineers was sent into the region at great expense to survey and mark out the boundaries, but the savannah could not be found.

I shall not attempt to do more than to describe the specimens here illustrated and to give some account of the ceremonies in which they are used. The great feather headdress (Frontispiece) is used by the medicine man in ceremonial dances in which he performs the leading part. It is worn also by the war chief and by the initiate during a part of his puberty ceremony. Plate XIX shows the war chief in full costume ready to lead a band of warriors in a dance preparatory to setting out on a raid or in the celebration of a victory.

The foundation of the headdress is a rather crudely woven high hat made of arrow reeds and palm frond splints. As the hat is entirely covered with feathers its structure is unimportant except that it must be sufficiently strong to carry the long feathers. There are nine bands of small feathers around the hat. The feathers of each band are strung or woven on cotton cords and tied around the hat in proper position. The long feathers at the top are fitted into a reed which runs along the top of the hat. At the conclusion of a dance or other ceremony in which it is used the headdress is dismantled and the feathers stored in joints of bamboo for protection against the elements and destroying insects. These headdresses are considered very valuable by the Indians because of the difficulty in collecting the feathers and the time and skill required in making them up.

The long red feathers are plucked from the tail of the great macaw; the white streamers at the top are made of eagles' down; the ornamented sticks attached to the long feathers are covered with feathers from the humming bird; the pendants attached to these are of beetles' wings. The first band of white below is made of feathers from the harpy eagle; the black band, from the curassow; the yellow, from the oriole; the green, from the parrot; the yellow and red from the macaw; the red, from the macaw; and the white bands around the brim are of feathers from the eagle and the egret. None of the feathers are artificially colored.

The streamers of the headdress and the cloak of the chief are made of strips of bark dyed black with the juice of the genipa. The great macaw is the most difficult creature of any in the forest for the Indian to capture. It flies high and alights on the topmost bough of the tallest tree. When it feeds it plants a sentry for its protection. To capture it the Indian builds a blind in the top of a tree and secretes himself there until the macaw alights, when he shoots it with a blow gun and poisoned arrow.

Ordeals

The puberty ceremony is an endurance test required of boys before they can be admitted to the company of men or take part in the councils of the tribe. The ceremony, which lasts for twenty four hours, is usually taken part in by three or four boys at a time. Some are unable to endure the test and fall out to try again at another time. At daybreak the boys, unadorned, with staffs of arrow reeds in hand, gather under the direction of the medicine man. They partake of some food which has been especially prepared for them, and just at sunrise, which on the equator comes very soon after the first streaks of light, they repair to the dance ground where they sing and dance the whole day through without rest or refreshment. During the day the medicine man and his assistants make up the large headdresses, make the wasp frame (Plate XX), and fill it with live wasps. At the setting of the sun, the boys who have endured the strenuous dance present themselves before the medicine man who applies the wasp frame to their chests, backs, arms and legs. Those who scream or who betray any visible signs of suffering when they are stung are not allowed to continue the ordeal. Those who have been brave and have not revealed their sufferings, put on the great headdress and, carrying a flute in the left hand and a dance arrow in the right, proceed to the dance ground where they dance around one behind the other over the dancing board, blowing their flutes and waving their dance arrows until finally about midnight they fall exhausted on the ground. They attempt to rise and continue, but others surround them with mats and palm leaves and compel them to lie on the ground until the medicine man gives the signal for them to jump into the river for a bath. When they return the medicine man gives each his first loin cloth, cuts off his hair over the forehead and decorates him with strings of beads and a bandoleer of monkey's hair.

The preparation of the dancing ground is interesting, but common among east Carib tribes. A large plank is made from the flat root of a tree and placed over a deep hole in the ground in which a sacred bundle has been deposited. The board is then covered with clay, thus making a hollow sounding dance ground. The sound of the dancing feet may be heard a long distance and adds rhythm to the music of the flute. The board thus serves the purpose of a drum, but this is not its primary function. It is used as a method of communication with the deity to notify him that the dance is in progress.

The flute[1] used in the dance, is made of a hollow bamboo joint wound with cotton and having a reed made of a bird bone inserted through the septum at the lower end. A decorated calabash attached at the reed end serves as a resonator. They have other flutes closed with wax at the upper end and blown with the mouth at a lateral hole. The hunter's horn is made of a joint of bamboo two inches in diameter and ten inches long. It is blown through a square lateral hole and may be heard a long distance. The number of blasts informs other hunters what kind of game has been discovered.

The wasp frame is usually constructed in the form of an animal, bird or fish. The central part, six by eight inches, which contains the wasps, is made of wicker work of soft material. The heads of about a hundred wasps are passed through the splints or at the interstices. In this uncomfortable position the wasps are ready to sting upon the slightest provocation. The other parts of the frame are covered with feathers of various colors in order to make the animal appear as realistic as possible. Instead of wasps, large black stinging ants are sometimes used for the same purpose. The exact distinction in the applications of the two insects is not understood. Ants are used to sting certain parts of the body, while wasps are used for other parts; ants in some ceremonies and wasps in others. There may be some sentimental reasons for the distinctions in use, or the stings may produce different effects upon the parts of the body to which they are applied. The sting of either the ant or the wasp is more painful than that of our domestic honey bee, hence it requires considerable courage to submit to the ordeal of being stung by one hundred of these vicious insects all at once and to have it repeated on five or six parts of the body. Little wonder that some cry aloud with pain.

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[1] Museum Journal, Vol. X, Plate VIII.

Marriage

A young man cannot marry until he has successfully passed the puberty ordeals and thus has become a man. More than this, however, is required of him. He must give satisfactory evidence that he will be able to support a family. If he is not a good shot with the bow and arrow he will not be able to kill game and fish enough to supplement their vegetable diet. Therefore he is required to pass the target test. He stands with his back turned and throws cassava pellets at a circle drawn upon a piece of wood. If he does not hit the centre of the circle three times in succession he must repeat the whole endurance test and try his skill again or remain a celibate. In some tribes the girl's father tests the boy's ability with the bow by compelling him to shoot an arrow from the bow of a rapidly moving canoe into a bird's nest or a woodpecker's hole in a dead tree. If the boy should fail he is allowed another opportunity at a later date.

A girl must also undergo certain puberty ordeals and endurance tests before marriage. At the first appearance of puberty she must fast in seclusion for three days, during which time she is not allowed to talk. She must not eat meat for a month. When her fast is concluded her body is scarified with the sharp teeth of some animal or fish and she is allowed to wear an apron[1] for the first time. She is now ready to begin the courtship, in which she takes the initiative. She uses certain binas or charms to stimulate mutual affection. By rubbing her hands and face with a particular caladium she causes her favorite young man to think well of her. A woman may use the same charm to prevent her husband from forgetting her while he is absent on a long journey.

When a girl has reason to believe that a certain young man cares for her, she presents him with food and drink and places firewood near his hammock. If he accepts these offerings he thereby accepts the girl for his wife but she must submit to the ant and wasp ordeal before she can go to live with him. Her mother applies the ants to her chest, arms and legs and the wasps to her forehead. If she shows signs of suffering she must repeat the ordeal at another time. If she passes the ordeal satisfactorily, a feast and dance are given in her honor. She does not join in the dance but occupies a stool in a prominent place where she receives the admiration of all present. She now becomes the wife of the young man without further ceremony.

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[1] *Ibid.*, Fig 43.

Medicine Man

These ant and wasp frames are used also by the medicine men for remedial purposes, especially for relieving acute pain by the application of the stings to the ailing part. Whether or not the sting has a direct curative value it at least serves the purpose of a very strong counter irritant. Its best use is for rheumatism and for stiffness after overexertion. We have a belief among ourselves that the sting of the honey bee is good for rheumatism.

The duties, powers and performance of the medicine man are the most varied of any individual in any society. He is the teacher and guide of his people. There is nothing that he cannot do or that he does not know in the natural or spiritual realm. His chief duty is to counteract the evil designs of hostile spirits. He is reverenced and feared by the community and consequently enjoys more liberty and exercises more real power than any other member.

The office is hereditary, the medicine man selecting one of his sons for his successor. The boy must undergo a long period of education and training. He must become proficient in the natural history of the region; he must know the habits of animals and the properties of plants; he must know and imitate the cries and calls of animals and birds. He must learn the technique of the practice of his profession, the proper chants for the invocation of the spirits and the methods of the interpretation of dreams. He must fast and endure pain with indifference. He must submit to an ordeal which may result in his death. That is, he is required to drink a prescribed amount of tobacco juice, which produces convulsions. In the trance so produced he sees spirits and converses with them and by them is accepted as a spirit doctor.

In the practice of his profession the medicine man is sincere and believes as implicitly in his powers as do the common members of the tribe. He may not always be able to exorcise an evil spirit or to counteract the evil designs of certain spirits. The spirit may be too powerful for him, or the influence of a rival medicine man may be too great. He has one recourse in the case of sickness in his tribe. He can send an evil charm upon the tribe of his rival who is responsible for the particular disease. The charm is sent upon a woman who is always recognized by her own tribe and may be punished or even killed by them because of their fear of the charm.

When a person is sick and the application of common remedies has failed to produce a cure, some member of the patient's family approaches the medicine man, tells him about the case and requests him to visit the patient and attempt a cure. At the same time he offers the medicine man a cigarette made for the occasion. If he accepts it he thereby agrees to make the visit. He will not accept pay for his services until the patient is cured. This differs from our practice, but the next item agrees perfectly. He fixes his fee according to the patient's ability to pay. Since he does no manual labor, he accepts as pay, food and other necessaries of life. In an extreme case he may even receive a young girl on account. The number of his wives is limited only by his means of supporting them.

When a medicine man dies he is buried, and the spirit remains within the body for consultation by other medicine men. The body does not undergo dissolution but remains flesh, as in life. The body and the spirit become immortal.

The frames are used for still another purpose which is somewhat obscure. When an important man of recognized strength, courage, or ability makes a visit to a village a frame is brought out and he is asked to apply it to the different parts of the body of all the inhabitants, men, women and children alike.

A question arises as to the real significance of the use of the ant and wasp frames. Among the Carib tribes the frame is usually in the form of an animal, bird, or fish, and one is naturally inclined to think that it may have some totemic significance. This probability is strengthened by the fact that among the Wapisianas, a nearby Arawak tribe, the medicine man utters a little prayer to some animal when he applies the frame, which, however, is not in the form of an animal. He may say "Be as bold as the jaguar" or "Be as free from fever as the black monkey" or addressing the deity, "You have power to keep the monkey well; now make this patient well." As already stated, some noteworthy person may apply the frame and he may be a stranger who knows nothing whatever about the use of the frame. Is the efficacy in the effect of the stinging, in the animal represented, in the person making the application, or in the petition to deity? Does the initiate receive the strength and courage of the particular animal to withstand the ordeal, or is it the character of the person making the application that he receives? The ideas in the mind of the Indian seem somewhat confused on this point. Any one or all of these ideas may be present at a particular performance.

The Apalaii believe that these ordeals render the parents skilful and industrious and insure the birth of strong robust children. We can easily agree with them. The weak of body or mind cannot pass the endurance test and hence are unable to marry and perpetuate their weaknesses. The obligation of publicly enduring severe bodily pain without showing signs of suffering certainly demonstrates strength of character and has a real value in the development of the race.

ENGLISH-APALAII

The Family

aunt	apiri
boy	udasimanŏ
brother	urui
child	imugŭrŭ
companion	dakoronĭ
consort	inió
father	jumĭ
friend	jĕpĕ
girl	wetamano
grandchild	inotĭ uparĭ
grandfather	iñotĭ
grandmother	tamu
man	arutau
mother	aia
neighbor	sepo
old man	tampo
old woman	nupome
people	enŏ
stepfather	imeritamŭrŭ
stepmother	imeriñotĕ
sister	dumokară
son	kokŏ
uncle	pipi
wife	ĭpĭtĭ
woman	nupotoma
young woman	poito
younger brother	jakoronĕ
younger sister	patiĕ

Parts of the Body

arm	apu
armpit	ada'ata
armpit hair	ada'atcipŏ
auditory canal	panaularĕ
back	mĭpa
backbone	mĭpakana
beard	jarotĭrĭ

belly	waku
blood	munu
body	oko
breast	puroro
brow	opi
calf of leg	asipuno
cuticle	pětĭ
ear	pana
elbow	aporitci
eye	onu
eyebrow	osepitcipokanko
eyelashes	opitcipŏ
eyelid	opipŏ
face	perĭ
finger, little	omamugura
finger nail	omatciporo
fish	ipi'ipĭrĭ
foot	pupŭ
fore arm	ome'etcĭrĭ
gums	děpuno
hair	osepo
hair of hand	ipotĭ
hand	oma
head	opupo
heart	isoroinarĭ
heel	pitakumŏ
instep	pupumuparĭ
knee	osekumu
knuckle	oměku
lips	patapipo
lobe	panemuru
mouth	mĭta
nape of neck	pĭmĭ
navel	pono
neck	oma
nipple	manatĭ
nose	auna
palm	omarari
patella	arikina
pubic hair	imerekango
pulse	tuankŏ

rib	oropă
shoulder	mota
side	oritĭ
skeleton	apopakurĭ
sole	asimŏ
sole	pupu rarĭ
suckle	su’usu
tendon	pĭramĭtĭ
throat	osĭnamu
thumb	omadumĭ
toe, great	pupu dumĭ
toe, little	pupu mugŭrŭ
toe-nail	pĕpĕtcipoto
tongue	nuru
tooth	dĕrĭ
vein	mitĭ
vision	omĭ
wing of nose	orame
wrist	ometukutukŏ

baldness	merekweme
fever	otcirŏno
fever, high	atciro’ononko
headache	dupu’upĭrĭ jetuno
hiccough	sekĭauko
influenza	murităno
shiver	oneko
sickness	jetunŏ
sigh	jetainŏ
sneeze	aciwego

Animals

angouti	akuri
ant eater, large	merimo
ant eater, small	meri
bat	darĭ
capabara	kapiara
deer, red	kapau
deer, savannah	iarito
hog	aruru
jaguar, black	arikitci

jaguar, spotted	kaikutci
mouse	mupŏ
oscelot	marakaia
otter, large	awawă
otter, small	dukinĕ
paca	kurimau
peccary, ring	poiñokŏ
peccary, white lip	pakĭră
puma	kapaumanŏ
tamandua	meritcimo
tapir	matcipuri
tortoise	karatci
turtle, large	morura
turtle, small	nimotuko

Birds

bird	torono
cormorant	muramura
curassow	oko
duck	oropono
eagle	piano
egg	imo
hawk	tcıwi
hawk, chicken	tiautiau
hawk, white	kumarako
maam	mau
macaw, green	aripira
macaw, red	kinoro
maguary	akarara
nest	imoni
nigercoot	kirima
owl	kuku
owl, horned	pupuri
owl, screech	kurau
parikeet	kurikura
parrot	parawa
parrot, green	parawaimo
toucan	karau
vulture	kurumu
vulture, king	morarai
wing	aporĭrĭ
woodpecker	parutaparu

Reptiles

alligator	iakare
anaconda	aramari
bushmaster	jurukuku
jaboty	kuripupo
lizard	duana
matamata, turtle	matamata
snail	okoi
toad	kuto, mawa
tracaja	kurara
tree toad	kwakwa
turtle	purupuru

Fish

fish	kană
pacu	paku
pirai	poně
piraracu	pirarara
trout	epi'ipĭrĭ
tucunare	tukunare

Insects

butterfly	pĭrĭmoko
earthworm	mukuku
flea	moromoro
grub	oroko
mosquito	masako
moth	arawe
pium	piu
sand fly	tcikŏ
wasp	arimene
yellow wasp	paraku

Plants

abiu	maraiarĭ
bacaba	airiki
bamboo	kurimuri
banana	paruru
banana, red	manau

bark	erupi
bast	wempĭpĭrĭ
cassava	wui
corn	atcinase
cotton	mauru
fruit	epere
genepapa	kurupo
grass	jerikosuru
moss	nonopotĭ
orange	naraja
papaya	mamau
peppers	aitci
pineapple	nana
potato	napi
pumpkin	iromo
sap	ekuru
stem	doko
tobacco	rue
tree	wewe

Numerals

1. senĭ
2. asakoro
3. oseru'au
4. asakoro panĭ
5. omametone
6. ioponataputĭkasitoiro
7. oma dumo kapună
10. oma mositoro
20. pupumĕ omame

all	pimĕ
end	ĕtĭpĭrĭ
enough	tarona
half	pimĕpĭrĭ
little	akoipĭrĭ
much	tuke

Colors

black	tcinamutume
blue	tcinakulume
brown	aradumĕ
golden	deweme
gray	temeremere

orange	ararame
red	tcinimĕ
white	karimutume

Adjectives

bitter	ituno
blind	tcitanko
cold	kwenime
dead	orinonka
deep	duĕ
good	kure
hard	tumpore
heavy	omatcino
high	kai
hot	atcitune
large	dumo
light	dodome
long	mosa
low	toroăme
new	kurane
old	kakato
round	merimi
short	amanoko
sick	kurĕpĭrĭ
small	dumokara
strong	otĭkanko
tame	denopĭrĭ
tired	itaino
wet	tatcikure
whole	etororo
wise	duaro

Natural Objects

ashes	arunŏ
black earth	tcinimanŏ
blue sky	eduedumĭ
clay	tawa
clear water	tunetcine
cliff	sokome
cloud	kapu merĕru

coat	karanato
dawn	imĕpĭrĭ
day	tatcaitawa
dew	apasakŭ
earth	nonŏ
fire	apotó
fire stick	sĭkĭsĭkĭmako
fire, to blow	sukako
fire, to make	apotodukanko
firewood	nĕwĕ
flame	tororokane
forest	itutakă
heat	mimĕ
hole	orame
island	amăto
jupiter	tcĭrikango
midnight	pakaimo
moon	nunŏ
moon, full	osepunemeato nunŏ
moon, new	nunŏ picika
mountain	ĭpĭ
night	koko
noise of the falls	erurukane
orion	scipepini
path	osema
Pleiades	puripurikane
pot	oriño
rain	konopo
rainbow	okokuri
rainy season	konopotenko
rapid	dumo
river	iamunu
river bank	iporirĭ
sand	sawano
salt	sauto
savannah	oná
seashore	tunepi
shadow	udenŏ
Sirius	moporokăwa
sky	kapu
spark	aitcukarane

star	cĭrĭkweto
star, falling	nĕpukănŭ
stone	tŏpu
storm	konomerŭ
sun	tcitci
sun over head	tcicirudenŏ
sunrise	tcitcipĭrĭ
sunset	tcitci tuntanto
thunder	togane
thunder storm	takaragane
water	tuna
waterfall	tĭrĭkane
wind	aioaiwĕpĕ
yellow earth	ndoro
zenith	akurunĭ

Nouns

arm feathers	patcikĭ
arrow	pĭru
arrow feathers	aporĭrĭ
arrow foreshaft	emako
arrow notch	akinakatopo
arrow point	taipi
arrow shaft	mutĭse
auger	trade
axe	wĭwĭ
axe blade	wĭwĭpuru
baby-carrier	tupodă
bandoleer, cotton	amariarĭ
bandoleer, monkey hair	arawipotĭ
barbecue	mamĭrĭ
barb of hook	ipotĭrĭ
basket	arumakano
bird house	pupomănŏ
blade	doka
bow	kanawapotĭrĭ
bow	takĭ
bow, back of	depupĭrĭ
bow, belly of	atikĭrĭ
bowstring	amitĭ
breakfast	kokoro atoutade

broom	sapi
calking	iări
camera	eku'utopo
canoe, bark	kanawa
canoe, dug out	kanawadumŏ
cassava	wui
cassava press	mătapi
club	kaparu
club handle	dopopĭrĭ
club head	roko
cotton	maurŭ
crown of feathers	samarero
curari	urari
dog house	japa
drill	sĭkĭsĭkĭmako
drink bowl	aripo
ear feathers	panapotĭ
ear pendants	panasĕrĕ
eye of hook	atekĭrĭ
fan	anapomo
farina basket	aruto
field	tupito
fieldmouse	rĕrĕ
file	kĭrĭkĭrĭ
finger ring	omatau
fire drill	apoto ematopo
fire drill shaft	pĭru
fire drill string	jatcĭrĭ
fish	kananino
fisherman	okerĭ
fishhook	okă
floor	kaitoko
floor mat	ĕpĭrĭ
flute, bamboo	rué
flute, bone	kujukujori
flute, of five holes	arararuina
flute, of three holes	rutopo
food	otuno
go to the field	tupita akononko
grater	wai
grave	tonĕsĕ

hammock	atuato
hammock ropes	kotuatakanko
handle	ipanarĕ
headdress	oroko
hearth	ononto
house	tapui
house, dance	dumó
house, oval	takwaikĕmo
juice	wui
key	sawi
kitchen	kuri wupomănŏ
ladder	opi
leg band	mauru
loop of press	nonoitĭ
machette	tapema
mat	upătopo
mirror	osĕnĕ
mortar	ako
nail	prĕgo
oar	mara
pack basket	orokoine
panpipes	kuripupo
path	osema
pencil	ŏsĕpŏ
pestle	akoaine
pin	iawi
pipe	kachimbo
pitch	mani
potter's clay	tomeri
powder	urupara
rim of bowl	ipotari
row	kaianko
rudder	apokuita
saw	serotĕ
scissors	saipe
screw	iapi
seat	inepuru
shot	tcumbo
shoulder basket	parasi
small pen	kaipiri
social gathering	itumekupĭrĭ

soup	takaka
spin	epoinko
spindle	kuira
spindle whorl	kuitaděrĭ
spoon	kuie
starch	okoipuno
stool	epaitopo
supper	akoñi atoutade
tapioca	imuri
thread	maurutaburn
tinder	utukango
torch	artu
torch light	ikarankako
turtle pen	tirakamănŏ
twist	kuitaburŭ
village	pata′
village square	tutumănka
whetstone	tcimari

Pronouns

I	iwĭ′
you	amoro′
he	mose
we	mosamo
you	mokĭ
mine	icuko
yours	ratowĭ
his	ekaro

Verbs

bathe	ipuse
be	taromănă
bring	tune enaiko
bury	akanko
carry	tuokŏ
cut	ikeokŏ
dream	asorinonkŏ
drill	sĭkĭsĭkĭmako
drink	tosema
eat	no.inŏ

fall	nepukanŏ
find	eporĭnkŏ
fish	kananĭnŏ
give	saro
go	ităkă
hunt	arakanese
make	ĕrunonkŏ
pull	ĕsĭrĭmakŏ
row	kaianko
see	ĕnainko
sing	itankŏ
sleep	nĕnongase
speak	otorunkŏ
spin	ipoinkŏ
strike	nona'akankŏ
suck	supinkŏ
twist	kuitaburu
wish	isase′
work	eraunonkŏ

MARACA TRIBES

In Northwestern Brazil there are two great tribes, the Wapisiana and the Macusi, who belong to the Arawak and Carib linguistic stocks respectively. On the Maraca River, a branch of the Uraracuera, there are found some remnants of former Carib tribes: the Zaparas, the Azumaras and the Porokotos. While little is known of their culture and language it seems desirable to record what we have collected because, in all three cases, pure bloods disappear with the present generation and no one will remain who has any information or interest concerning them.

ZAPARAS

The Zaparas formerly lived in the highland about the headwaters of the Uraracuera River, but more recently the remnant of the tribe moved south of the Maraca River, where the few who remain still live. Some time about 1900 an epidemic of smallpox carried off all but a few, who afterward lived among the Macusis. Today only three full blood individuals remain, a woman and her two sons. One of the boys (Plate XVII, E) speaks Portuguese, the other speaks Macusi, but the mother speaks only her own language, which is very closely related to Macusi. There is a tradition that the Zaparas originated from a cross between Arecunas and Macusis.

AZUMARAS

On the Maraca River we met an Indian (Plate XVII, D) who said he belonged to the Azumara tribe and that he and his brother had been brought when small boys to this region. Neither he nor the man whose servant he was knew where he formerly lived or from what direction he came. Fortunately the two brothers had remembered something of their own language which is easily recognized as belonging to the Carib stock. The two men were the lightest in color of any Indians we met in South America. But for a slight yellowish tone they could pass for whites. They differed in physiognomy also from the Macusis, and the other tribes in the region. They had forgotten all about their former culture and their people.

ENGLISH—AZUMARA

arm	yahili
arrow	hulya
arrow feathers	hulyahilumu
arrow knob	hulyanakata
arrow point	hulya
arrow shaft	hulyamiti
baby	bubuasaino
back	umakali
banana	rătană
bow	uraha
bowstring	urahadawali
brother	kaibă
capabara	haluina
cassava	tĕrĕ
cat	paka
chest	yolohulu
chin	ihetamaru
cormorant	hauihi
curassow	hauisi
daughter	wilici
deer, red	kusali
deer, savannah	wiki
dog	kulĕ
duck	miciwaku
earth	nona
elbow	yahiyaba
eye	yenuru
eyebrow	ihăcibŭ
eyelash	iencibawa
face	iheli
father	haku
finger-nail	ilyolo
fingers	yamutiri

fire	wadok
fish	dunakwali
fish, pirai	arata
foot	ikuhuru
fox	maikau
hair	ubĕtcubawa
hair, body	yaiciba
hand	yamuru
head	uhuba
heel	ilakumu
husband	iya
joint	yamuhalăkata
knee	yaukumulu
leg	ihĕle
lip	yĕbirĭ
man	toto
moon	nuna
mother	naku
mouth	umatali
nose	unari
otter	tsaro
paca	wamuli
palm, hand	iyamura
papaya	kauyimă
parakeet	tuwano
parrot	doro
peccary	hiya
plantain	raianta
potato	săku
rain	konahak
rice	hawati
river	tuna
shoulder	umatati
side	yawaba
sister	iwaliciri
sky	kahu
snake	oki
sole	ikuhulali
son	iyeli
star	kirikŭ
string	dawali

sun	viyu
tapir	waliali
thigh	imiti
tobacco	kawi
toe	ikuzuri
toe-nail	ikuhiba
tongue	inuru
tooth	iluli
turtle	warara
water	tuna
wife	ihili
woman	huti

NUMERALS

1. tuiné
2. asaré
3. asalua
4. asalihĕné
5. amatobatĕra
6. amatoyetoikĕza
7. setuiné'ambatĕra
8. asare'amatoyetoikĕza
9. asaluasiare
10. serua
11. asarehĕne
12. ausatatuwali
13. kotonatoikĕze
14. asare
15. asalua amatolebatĕra
16. salhĕne
17. kutabatĕra
18. katonatoikĕze
19. asare
20. asalhĕne uhutoterohale
21. tatuine
25. duiñe

The Azumaras begin by counting the little finger of the right hand first, then count up to the thumb, pass over to the thumb of the left hand and down to the little finger. Similarly in counting the toes they begin with the little toe of the right foot and count over to the little toe of the left foot. They count objects and touch their fingers and toes in the same order. The numbers for corresponding fingers and toes sometimes have similar names.

POROKOTOS

The Porokotos formerly lived on the so called island of Maraca. The maps of Northern Brazil show a very large island in the Uraracuera River which is surrounded on the south by the Maraca River. No one has ever been around the island and there is no evidence that a branch of the Maraca enters the Uraracuera above the island. We ascended the Maraca farther than it had previously been explored and were inclined to think it an independent river. Besides, the Maca Indians come down the Maraca River every year to trade but never come down the Uraracuera which would be a much shorter journey to a trading place.

The people lived on the first Parana above the mouth of the Maraca. Smallpox and other diseases had reduced their numbers to about a dozen in 1904. They were known as the most industrious and most tractable of all the tribes in the region; hence they were desired as servants by every one who had heard of them. A few years ago, a man in Manaos sent word to a friend on the Uraracuera asking him to get an Indian girl and send her down to the city. His friend sent his brother and another man to the Porokotos to see if they could find a desirable girl. It was not intended by any one that force should be used. The men found a girl, but in their efforts to persuade her to go with them a fight ensued and the man in charge was shot through the body with an arrow. His companion deserted him but was followed and killed by the Indians. He managed to get into his canoe and push out into the river away from danger. The arrow projected on both sides of his body and could not be extracted so he cut off both ends of it and then paddled his canoe down river to his brother's home, where he soon died. The authorities arrested six Porokotos, all the men of the tribe and started with them to Manaos for trial, but on the way three escaped and the other three were killed. Those who escaped died of fever and exposure on the way across coming home. Now only three women remain and they are living among the Macusis (Plate XVII, A).

Their language, as will be observed, is a dialect of the Carib stock and closely related to Macusi. This may be the same tribe that Schomburgk found in the highlands of the north and called Purigotos.

English—Porokoto

arm	auyemekung
arrow	poya
arrow feathers	poyaro
arrow knob	powalimi
arrow point	ponatika
arrow shaft	poyami
baby	lakra
back	aumpai
banana	paruru
bow	powale
bowstring	powateliwang
brother	auyakano
capabara	kapiwa
cassava	kele
cat	paka
chest	auputelipŭ
chin	aupitamu
curassow	pauihi
daughter	wilĭhwe
deer, red	sari
deer, savannah	waiking
dog	kŭlŭ
duck	maiwa
earth	nono
elbow	auplĕzi
eye	auyenu
eyebrow	aurama
eyelash	aunoflatcepa
face	aupi
father	amĕ
finger	auyĕnda
finger-nail	auyendapipŭ
fire	apoto
fish	asăpu
fish, pirai	araha
foot	utai
fox	maikang
hair	aupupiyipa
hand	auyĕndamipai

head	aubupwŭ
heel	auyĭpamuñĕtĕ
husband	unyok
jaguar	kaikusi
knee	auwisemŭ
leg	auwarekwai
lip	auyĕpi
man	nobŭ
moon	naño
mother	amé
mouth	au'untang
nose	auyonung
otter	mupawa
paca	walamuli
palm, hand	auyĕndară
papaya	papada
parrot	urauu
peccary	piyĭnkŭ
potato	laku
rain	konopo
rice	awati
river	paruyama
shoulder	aumutel
side	auyurakiyĕpŭ
sister	tiko
sky	ka'a
snake	kainiahiĭ
sole	utaira
son	unre
star	tilikŭ
sun	wei
tapir	wayali
thigh	auyurarekwai
tobacco	kawaii
toe	utaipĭpwŭ
tongue	au'unu
tooth	au'uyu
turtle	warara
water	tuna
wife	wilĭhwĕ
woman	wilĭhwewilĭ

Numerals

1. aleini
2. iniperkuru
3. inialé
4. inialenula
5. aliniamipai
6. awienayu
7. ininiaperkula
8. ayayendawa
9. nayendawamepone
10. salileka
11. utaiyung
12. utaiyungtarung
13. utaiyukataiyung
14. iniperkurung
15. utaimiperkŭ
16. utaiyungatolo
17. perkurung
18. ale
19. perurungmi
20. mipai

The Porokoto begin counting with the thumb of the left hand then, after the fingers are counted, the thumb of the right hand, the great toe of the right foot and the great toe of the left foot. In counting grains of corn, each grain was moved separately and at the same time the corresponding finger or toe was touched and the number given.

One is sometimes expressed by ini alone. The meaning of the first four numerals is not understood; five, aliniamipai, is aleini, one and amipai, hand; six and seven are unknown; eight and nine are made up of yenda, finger and additional particles; ten is unknown; eleven is the great toe of the right foot and bears its name, utai, foot and yung, father; seven, fourteen, seventeen and nineteen are made up of perku, a part of two, with prefixes and postfixes; sixteen is the great toe of the left foot with the syllable *atolo* added; eighteen would seem to be incomplete; twenty is a part of the word for hand but it probably means person when used alone.

OTHER TRIBES

Many mistakes have been made in the past by travellers who have located on their maps the positions of tribes they did not visit and about whom they knew nothing more than the name and the general direction of their territory. Tribes speaking different languages often have different names for the same tribe, so the name the traveller gives to a tribe depends upon the direction of his approach. Many times distinct tribes bear the same name because they happen to have something in common: they may use poison or paint or live on a mountain or along a river; hence they are poison people, paint people, hill people and river or water people. Thus there has been brought about much confusion in regard to the names and locations of many South American tribes. I shall give the names of some twenty tribes without attempting to locate them on the map. The Diaus say there are six tribes living to the east of their territory: Arimianas, Kalicinas, Okumianas, Paraivianas, Pianokotas, Uricuanas and Waiwĕanas.

The Waiwais speak of three tribes to the south and southeast of them. The Pauyaiden who live to the southeast speak a dialect of the Waiwai language. The Cileus live far down the Trombetas and speak a distinct language. They have the custom also of wrestling on the sunken sounding board in the dancing ground. Two men face each other standing on the board and strike each other with whips until one throws away his whip and clutches his opponent. The proper hold is right arm over left shoulder and left arm under right arm of opponent grasping waist band of breech cloth. The contestants either try to throw each other down or to lift each other off the ground. The Bili tribe lives in the savannah not far from the Cileus. They have an ornament for the mouth which is described as being like a bridle bit. The Tarapidians live lower down the Trombetas.

The Apalaii give the names of the following neighboring tribes. Those marked with an asterisk are friendly: Ajana, Arikiana*, Duanapuku*, Kaikutciana*, Ojapi, Pianoi*, Roucouyenne, Tĭrijo and Upurui. The Waiwĕs say the Karaps formerly lived far to the southwest of them.

SCHOMBURGK

The only other man who had visited any part of the interior we traversed was Richard Schomburgk, who, in 1843, crossed from the Essiquibo to the Apini, descended that river to the Wanamu, which he followed to its source, crossed the Acarai Mountains and came down the Corentine. He gives the names of tribes visited on the way but tells us very little about them or their culture. At the head of the Apini he found the Maopityans but refers to no other tribe except the Zurumatas, a branch of the Pianoghotos. On the Wanamu his Maopityan Indians were attacked by the Pianoghotos. He passed by a village of the Orokoyauna or Papagei Indians, who were the terror of all other tribes and went on to the Drios on the Cutari, where he built bark canoes and descended that river for twenty six days without meeting any one.

We found Mapidians in the interior but none on the Apiniwau. Near where Schomburgk found Zurumatas we found the Parukutus. On the Wanamu we found no one living, but on the divide, where he speaks of Pianoghotos, we found Diaus, and on the Cutari, where he found Drios, we found no one living.

Schomburgk[1] locates on his map a Barokoto village south of the equator on the Dara Kityu River, the Paroghotto territory to the east and the Tunayanna extending to the Kaphu River or Trombetas. He did not visit this territory but heard of these two tribes. It would appear that these tribes have moved to the northeast and are the same as our Parukutu and

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[1] Reisen in British-Guiana in dem Jahren 1840–1844, Leipzig, 1848.

Toneyena, that the Maopityans have moved to the southeast and that the Pianoghoto and the Drio have moved to the eastward. In 1884 Coudreau[1] crossed the Acarai Mountains from British Guiana, visited a Moonpidienne village, and an Ouayeoué village and returned. His map shows the location of all the tribes reported in the whole region in every direction but he visited only two of them. Northeast of the Apini River he shows a tribe of Yaous in the highlands. These no doubt are the same as our Diaus who have moved eastward along the highlands and displaced the Pianoghotos of Schomburgk.

The Drios cannot be the same as the Diaus because Schomburgk says the Drios tattooed the body all over, whereas the Diaus tattoo lines at the corners of the mouth only. Neither can the Pianoghotos be the Parukutus because the women of the first, according to Schomburgk, wear their hair short, whereas the women of the second wear theirs long. It is hardly likely that two such important customs have been changed without any contact whatever with the outside world.

Schomburgk did us one kind turn. He took with him from the Essiquibo River a young Taruma, whom he left behind on the lower Apiniwau River. The boy made his way southward, married a Parukutu woman and remained in the country. He taught his children to speak Taruma (Arawak) while his wife taught them Parukutu (Carib). On our journey we fell in with one of his sons who was greatly pleased to act as interpreter and to accompany us to the next village.

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[1] Études sur les Guayanes el L'Amazonie par Henri A. Coudreau, Paris, 1887.

SOMATIC CHARACTERISTICS

The value of descriptive characters is largely negligible because of unsatisfactory standards and the great range of personal estimation of differences in unmeasurable magnitudes. It is dangerous for even an experienced observer to speak in general terms, yet some description is often essential.

From the photographs and physical measurements it will be seen that the people here described, both men and women, are well developed but neither excessively fat nor noticeably muscular. They have smooth regular features on the whole and are comely in appearance. The forest tribes are the most attractive Indians in physical aspect, as well as in manners, that we have ever encountered anywhere. They are always neat and scrupulously clean in their habits of life. They bathe frequently, men, women and children all going to bathe together once or twice a day. The dogs are bathed and the houses kept clean of rubbish and free from evil odors.

Their eyes are medium in size, very dark and sparkling. The eyeslits are horizontal among all the tribes with the exception of a few individuals, noticeably the Diau girl (Plate XVI, D–G) and one Parukutu man, who have eyes with a decided slant. The conjunctiva is yellowish in the adult. The eyebrows are carefully extracted by both sexes because they interfere with the vision. Sometimes the brows are painted black on account of the appearance. The supraorbital ridges are not highly developed in the men, but show more than is customary because of the absence of the brows. The nose is straight in outline with a medium bridge and root. The wings in some cases are quite broad, the normally horizontal septum is usually pierced for the passing of feathers. The lips, never thin, are often quite heavy and sometimes protruding, but the face is never prognathous. The mouth is small or medium. The chin is rounded, never square or receding. The lower jaw is not prominent, but the molar bone is sometimes prominent, as among some of the Parukutus (see Plate XV, F–G). The teeth on the whole are very badly decayed. They appear to be worse among the women than the men. Macusi girls of fifteen have as a rule lost their two upper middle incisors, these seem to go first, then the molars and lastly the lower incisors. They frequently file the upper teeth in the hope of saving them and it does seem to prevent decay to some extent. The ear in relation to the length of the face is longer than among whites. The ear is rounding and stands close to the head; the helix is thin and rolled inward; the lobe is free and pendant and usually pierced in both sexes.

The head is free from any kind of deformation whatever. It is carried in an easy erect position, when walking or standing, as will be observed from the photographs. The hair on the head is lustrous black, abundant, fine and often wavy, particularly among the forest tribes (see Plate XVIII, B–D). The Parukutu in Plate XIII, A was the oldest man we had ever seen, but he had only a few gray hairs. No baldness was observed. The hair is worn long by both sexes and well cared for by oiling and combing. The women part their hair in the middle and allow it to fall free over the shoulders and down the back or tied in a knot at the nape of the neck. They usually cut the hair over the eyes and allow it to come down well over the forehead. The men usually part the hair over the head from ear to ear, comb one part forward and cut it across over the eyebrows; the other part is wound with a string and then confined in a decorated bamboo tube which hangs down the back. The men's hair was longer than the women's. There is no body hair except on the pubis of the men and there it is very scant. It is possible that the women extract the little pubic hair they have but we were assured by the men in the interior that the women never have any pubic hair. Two Waiwai married men told us that the women did not extract the hair; that there were only two women, the chief's mother and another old woman, who had any hairs and they not more than ten each. These women were spoken of as baby monkeys of the red howler species (*Mycetes seniculus*) because these monkeys at birth are bald with the exception of a few scattering hairs.

The Indian's senses of sight and hearing are highly developed but possibly no more acute than is found among white men who are hunters. I was never aware of any superiority in their sense organs over our own. They might see and get more game than we could, but if so it was because they, from their training, knew better where to look for it. Careful observations are sometimes of more value than direct scientific tests of eyesight. Keeness of sense is largely a matter of careful attention. You are walking behind an Indian on a trail, he stops suddenly, you have not heard or seen anything, but he points through the leaves to the top of a tall tree and whispers "Green parrot." You look and see a bird—it might be a crow as far as you can tell. You say, "What wonderful eyesight!"—not that at all. He noticed fresh seeds in the trail, he knew the parrot eats that fruit, he looked straight above and saw the bird feeding. Or your Indian stops, listens, gives a low call and gets an answer from a certain variety of curassow, he continues to call until the bird comes within twenty feet of him, when he shoots it with his bow and arrow. You say, "How wonderful!"—you had not heard the call of the bird in the beginning—neither had the Indian. He knew that particular bird haunted that kind of forest and gave the first call to learn if any were in hearing. In some such fashion nine-tenths of the stories concerning the superior senses of primitive peoples may be explained.

The ability properly to orient oneself may be thought of as the sense of location, but when analyzed it is reduced to education and attention. The Indian always knows the way home, while the white companion is likely to get lost. On a dark day in the dense level forest jungle of the tropics there is nothing to guide the stranger, and he is surprised to find the Indian is able to make his way back to camp.

The Carib tribes in the forest are lighter in color than the Macusi of the savannah and lighter than the neighboring Arawaks. No scale color that I have ever found will match the skin color of the Indians of the forest; they are lighter than any of the North American tribes with whom I am acquainted. Their light color may be due to their life in the dark forests, or to the custom of covering their bodies with red paint, or to a combination of both.

Men and women have great endurance in travelling on the trail or in the canoe. The women are accustomed to carry heavy loads of corn or cassava from the fields to the house, so they carry the same load as the men in a pack train. Any one will travel from fifteen to twenty miles a day and carry fifty or sixty pounds. On one of our journeys we were compelled by lack of water to make fifty four miles according to my pedometer in two days, from the Yupukari on the Rupununi to the Mission on the Takutu. The Macusis are stronger and more rugged than their Wapisiana neighbors. They walk with a quick step, the feet straight and hands swinging, palms to thighs. They like to travel fast and camp early. When the shelter has been made a bath is taken before the dinner is prepared. As soon as the meal is over, they retire to their hammocks and are soon asleep. The tump line is used when packing heavy burdens and this, no doubt, accounts for the erect attitude and good carriage of all these people. Men and women assume different postures when at rest. Men habitually squat on their heels while the women sit flat on the ground, usually with one knee bent and the foot close between the thighs. Men sometimes stand on one foot with the other held against the opposite leg close above the knee. Both sexes squat to urinate.

Abnormal persons are very rare among them. No case of albinism was ever reported. The Macusis destroy by strangulation any child born with marked deformity. Christie in fifteen years had observed one feeble minded, one mute and one deaf person; one woman with only one breast; one woman lacking the caudal vertebrae; one pair of twins. No ill luck or evil omen is attached to the birth of twins.

Artificial deformation is not practiced except the perforation of the lower lips, the nose and the ears. The head is not deformed. There is no circumcision nor ceremonial breaking of the hymen. Among the Waiwais, the men wear a cord around the body which supports the left half of the scrotum. In the beginning it may have been designed to support the heavy side but it is worn now regardless of necessity. I discovered it while bathing with them; one man who did not wear the support said he had put one on but it was so uncomfortable he had never tried it again.

MEASUREMENTS EXPLAINED

The measurements are the ones usually taken by field workers but some explanation of landmarks seems desirable in order to avoid confusion in comparative study. It is usually easy enough to handle primitive people, after their confidence is once gained, so long as it is not necessary to touch the person of the subject. But it is a very delicate matter to take measurements and to touch the body with strange cold instruments, particularly so with people who are so cautious that they throw away the first object given them and accept the second or throw away the first food and then immediately ask for more. We always took measurements of some of our companions first and afterward it was not difficult to persuade some one about the same height to stand up for comparison. After the men had been measured we would ask the chief about measuring the women; if he hesitated or the women were timid or bashful we did not urge them at the time but usually were able to get them later.

Our work was facilitated also by having men with us from the last village visited who told of all our doings there. My own height is nearly a foot greater than that of the average man among these tribes and their tallest men often would stand up by my side to measure my height then we would get the measuring rod. The operation required great care because there were no facilities; no floors, chairs, boxes or proper stools. The sitting height, difficult to take with accuracy under the best auspices, was most unsatisfactory. The other measurements were taken with more than ordinary precision because the people wore no clothing except the breech clout and apron. The strength of the hands was not accurately recorded because the dynamometer was so wide the people were unable to get a satisfactory grip on it.

LANDMARKS

Age: approximate. All measured were adults.
Height to shoulder: acromial of right shoulder.
Span: maximum arm reach.
Arm length: height to shoulder minus height to third finger.
Breadth of shoulders: biacromial.
Chest measurements: at level of nipples.
Breadth of hips: biiliac.
Length of left cubit: over the elbow to tip of medius.
Length of left third finger: over the joint.
Length of left hand: line of thenar and hypothenar eminences to end of medius.
Breadth of the hand: across the knuckles.
Breadth of foot: maximum at right angles to the length.
Length of head: glabello-occipital.
Breadth of head: maximum.
Minimum frontal: diameter between the temporal crests.
Breadth, bizygomatic: maximum upper face diameter.
Breadth, bigonial: diameter between angles of the lower jaw.
Height, menton-crinion: from the lowest point of the chin to the hair line.
Height of nose: from the nasal septum to nasion.
Breadth of nose: over the alae.
Respiration and pulse: taken by medical doctor with subject sitting at rest.

MEASUREMENTS[1]

TABLE 1.—MACUSI

Males	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	No. 14
Age	40	23	35	25	25	30	40	40	35	30	30	35	35	40
Height	1613	1507	1599	1507	1571	1570	1516	1550	1584	1526	1616	1591	1576	1486
Height to right shoulder	1335	1261	1306	1317	1287	1291	1249	1286	1300	1252	1330	1270	1277	1225
Height to third finger	618	628	630	645	630	....	594	643	595	616	....	....	635	605
Height sitting	820	810	837	815	841	820	780	780	835	795	860	820	833	771
Span	1680	1547	1684	1590	1623	1715	1646	1659	1700	1609	1708	1708	1636	1568
Arm length	717	633	676	672	657	....	654	643	705	636	....	....	642	620
Breadth of shoulders	369	350	357	360	364	378	348	353	356	337	385	380	356	349
Breadth of chest	290	304	303	280	290	314	270	292	285	280	302	307	285	287
Depth of chest	236	231	209	209	227	227	215	213	213	209	232	241	225	221
Breadth of hips	308	298	313	296	304	308	292	287	303	282	303	315	320	290
Length of cubit	452	419	450	430	439	452	436	445	460	438	467	452	430	410
Length of third finger	104	103	107	97	101	107	101	104	105	101	111	110	107	100
Length of hand	175	167	177	160	168	180	171	167	181	173	180	180	170	166
Breadth of hand	84	77	73	70	75	78	79	80	83	75	90	89	81	79
Length of foot	250	237	244	232	230	257	239	242	259	249	253	257	260	223
Breadth of foot	97	104	98	83	100	94	96	106	108	94	103	110	109	98
Length of head	185	182	182	173	190	180	177	180	182	183	187	197	197	176
Breadth of head	152	143	153	141	153	151	145	142	146	150	155	147	148	150
Minimum frontal	100	104	104	92	107	107	104	102	106	106	105	102	110	104
Breadth, hizygomatic	140	140	147	131	146	141	135	135	138	136	141	146	140	141
Breadth, higonial	107	110	102	95	103	107	104	102	101	106	109	103	115	108
Height, menton-crinion	170	177	187	165	193	195	176	172	174	163	197	176	173	177
Height, menton-nasion	114	....	....	....	....	....	....	....	....	....	121	118	110	109
Height, prosthyon-nasion	65	72	77	64	75	78	69	72	73	74	76	75	74	69
Height of nose	43	48	50	46	48	55	44	47	52	49	51	53	49	47
Breadth of nose	43	43	45	34	37	41	41	47	....	37	43	48	44	41
Breadth, ocular	66	68	68	58	68	68	61	68	71	63	69	74	66	59
Breadth of mouth	55	59	50	48	55	55	59	57	47	51	57	60	59	63
Height of right ear	60	69	63	56	67	73	59	62	60	66	60	64	59	59
Grip, right hand	132	....	....	....	....	....	....	....	....	....	100	110	125	90
Grip, left hand	125	....	....	....	....	....	....	....	....	....	100	120	100	70
Respiration	20	....	....	....	....	....	....	....	....	....	....	....	20	20
Pulse	96	....	....	....	....	....	....	....	....	....	....	....	60	52
Indices:														
Height sitting – height	50.8	53.7	52.3	54.1	53.5	52.2	51.4	50.3	52.7	52.1	53.2	51.5	52.9	51.9
Span – height	104	103	105	101	103	109	108	107	107	106	105	107	104	105
Arm – height	44.4	42.0	42.2	44.5	41.8	....	43.1	41.5	44.5	41.7	....	....	40.7	41.7
Cubit – height	28.0	27.8	28.1	28.5	27.9	28.8	28.7	28.7	29.0	28.7	28.9	28.4	27.3	27.6
Foot – height	15.5	15.7	15.2	15.4	14.7	16.3	15.7	15.6	16.3	16.3	15.6	16.1	16.5	15.0
Breadth shoulder – height	22.9	23.2	22.3	23.9	23.2	24.0	22.9	22.8	22.4	22.1	23.2	23.8	22.6	23.5
Breadth hips – hreadth shoulders	83.5	85.1	87.7	80.0	83.5	81.5	83.9	81.3	85.1	83.7	78.7	82.9	89.9	83.1
Chest	81.4	....	69.0	74.0	78.3	72.3	79.6	72.9	74.7	74.7	76.8	78.5	78.9	77.0
Hand	48.0	46.1	41.3	43.8	44.6	43.3	46.2	47.9	45.8	43.3	50.0	49.4	47.7	47.5
Foot	38.8	44.6	40.1	35.8	43.5	36.1	40.1	43.8	41.8	37.8	40.7	42.8	41.9	42.1
Cephalic	81.7	78.6	84.1	81.5	80.5	83.9	81.9	78.9	80.2	82.0	82.9	74.6	75.1	85.2
Bizygomatic – hreadth head	92.1	97.9	....	92.9	95.4	93.4	93.1	95.1	94.5	90.7	91.0	99.3	94.6	94.0
Bigonial – bizygomatic	76.4	78.6	69.4	72.5	70.6	75.9	77.0	75.6	73.2	77.9	77.3	70.6	82.1	76.6
Upper facial	46.4	51.4	52.4	48.9	51.4	55.3	51.1	53.3	52.9	54.4	53.9	51.4	52.8	46.9
Lower facial	93.8	....	....	....	....	....	....	....	....	....	90.1	87.3	91.4	99.1
Total facial	82.3	79.1	78.6	79.4	75.6	72.3	76.7	78.4	79.3	83.4	71.6	82.9	80.9	79.6
Nasal	100.0	89.5	90.0	73.9	77.1	74.6	93.2	100.0	....	75.5	84.3	90.6	89.8	87.2

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[1] All measurements are in millimeters.

TABLE 2.—MACUSI, *Continued*

Males	No. 15	No. 16	No. 17	No. 18	No. 19	No. 20	No. 21	No. 22	No. 23	No. 24	No. 25	No. 26	No. 27	No. 28
Age	50	40	25	35	25	20	25	40	40	35	22	20	30	35
Height	1616	1606	161[illegible]	1[illegible]86	1577	1566	1560	1613	1522	1430	1601	1523	1475	1611
Height to right shoulder	1345	1325	1350	1214	1291	1282	1282	1338	1256	1162	1341	1248	1189	1341
Height to third finger	643	635	6[illegible]0	585	6[illegible]0	584	561	630	556	543	637	570	540	610
Height sitting	860	838	837	807	836	834	785	826	765	784	795	770	758	780
Span	1750	1688	1757	1565	1669	1648	1658	1688	1654	1490	1646	1567	1520	1672
Arm length	702	660	720	629	664	698	721	708	700	619	704	678	649	731
Breadth of shoulders	382	357	377	342	376	361	382	378	377	354	368	335	357	384
Breadth of chest	287	260	300	263	273	265	303	300	308	289	285	264	281	322
Depth of chest	235	221	236	212	214	234	227	223	228	223	229	215	233	228
Breadth of hips	330	317	329	298	310	313	327	310	297	277	325	294	281	321
Length of cubit	462	446	473	414	438	446	448	444	435	397	457	430	411	455
Length of third finger	110	104	114	100	101	104	110	105	105	95	107	100	101	103
Length of hand	177	174	187	161	166	163	175	170	164	151	172	163	164	173
Breadth of hand	84	77	88	80	83	84	82	84	75	75	85	80	81	80
Length of foot	254	242	256	240	241	246	253	254	235	230	242	237	237	248
Breadth of foot	101	101	107	110	104	101	103	107	92	103	104	98	99	94
Length of head	183	176	188	178	190	197	195	188	182	181	182	178	182	190
Breadth of head	150	143	158	151	151	155	151	146	145	156	142	144	151	140
Minimum frontal	10[illegible]	96	104	103	118	120	110	100	98	104	111	107	106	110
Breadth, hizygomatic	145	133	146	142	142	144	143	131	137	140	138	132	138	138
Breadth, bigonial	105	99	110	108	115	120	116	108	105	107	112	106	112	118
Height, menton-crinion	195	178	185	178	182	180	173	178	172	173	163	157	172	178
Height, menton-nasion	128	117	121	108	117	113	111	117	115	119	115	107	117	124
Height, prosthyon-nasion	75	73	75	69	67	71	68	78	69	71	67	65	76	75
Height of nose	48	46	52	47	46	54	47	56	52	46	43	45	53	53
Breadth of nose	42	38	41	40	38	42	45	43	38	39	41	38	38	42
Breadth, ocular	69	63	64	61	65	55	68	64	57	61	68	68	66	68
Breadth of mouth	58	53	54	63	54	57	55	54	58	46	49	46	54	52
Height of right ear	72	64	64	61	64	62	61	63	65	58	57	56	63	63
Grip, right hand	110	105	160	85	130	110	120	100	75	60	95	75	90	105
Grip, left hand	80	110	140	83	130	95	110	95	80	60	85	70	70	105
Respiration	20	26	24	18	20	26	24	24	18	14	18	20	22	20
Pulse	56	72	72	56	66	82	76	80	74	60	78	84	66	76
Indices:														
Height sitting – height	53.2	52.1	51.2	54.3	53.1	53.2	50.3	51.2	50.3	54.8	49.7	50.6	51.4	48.4
Span – height	108	105	109	105	106	105	106	104	108	104	103	103	102	104
Arm – height	43.4	41.1	44.6	42.3	42.1	44.5	46.2	43.8	45.9	43.4	43.3	44.5	44.0	45.3
Cubit – height	28.6	27.7	29.3	27.8	27.7	28.5	28.7	27.5	28.6	27.7	28.5	28.2	27.8	28.2
Foot – height	15.7	15.1	15.8	16.1	15.3	15.4	16.2	15.8	15.4	16.1	15.1	15.5	16.1	15.4
Breadth shoulder – height	24.2	22.2	23.3	23.0	23.8	23.1	24.0	23.4	24.7	24.7	22.9	22.0	24.2	23.8
Breadth hips – hreadth shoulders	86.4	88.8	87.3	87.1	82.5	86.7	85.5	82.0	78.8	78.0	87.1	87.8	78.7	83.6
Chest	81.9	83.0	78.7	77.6	78.4	82.1	74.9	74.3	74.0	77.1	80.3	81.4	82.9	70.8
Hand	47.5	44.2	47.6	50.0	50.0	51.5	46.9	49.4	45.7	49.6	49.4	49.5	49.4	46.2
Foot	39.8	41.8	41.8	45.8	43.2	41.0	40.7	42.1	39.1	44.8	42.9	41.4	41.7	37.9
Cephalic	82.0	81.3	84.0	84.8	79.5	78.7	77.4	83.0	79.7	82.9	78.0	80.9	83.0	73.7
Bizygomatic – hreadth head	96.7	93.0	92.4	94.0	94.0	92.9	94.7	84.0	94.5	89.7	97.2	91.7	91.4	98.6
Bigonial – hizygomatic	72.4	74.4	75.3	83.1	81.0	83.3	81.1	82.4	76.6	76.4	81.2	80.3	81.2	85.5
Upper facial	51.8	54.9	51.8	48.6	47.2	49.3	47.3	59.5	50.3	50.7	48.6	49.2	55.1	54.4
Lower facial	81.2	84.6	90.9	100.0	98.3	106.2	104.5	92.3	91.3	90.0	97.4	99.0	95.7	95.1
Total facial	74.3	74.7	78.9	79.7	78.0	80.0	82.6	73.6	80.0	80.9	84.6	84.1	80.2	77.5
Nasal	87.5	82.6	78.8	85.1	82.6	77.8	95.7	76.8	73.1	84.8	95.4	84.4	71.7	79.3

TABLE 3.—MACUSI, *Concluded*

Males	No. 29	No. 30	No. 31	No. 32	No. 33	Average	Maximum	Minimum	Range	Average of Forest Tribes
Age	35	26	20	50	....	....	....	....	....	....
Height	1561	1551	....	....	....	1560	1616	1430	186	1589
Height to right shoulder	1283	1278	....	....	....	1284	1345	1162	183	1312
Height to third finger	558	595	....	....	....	607	665	540	125	....
Height sitting	806	790	....	....	....	810	860	758	102	814
Span	1626	1618	....	....	....	1643	1757	1490	267	1654
Arm length	725	683	....	....	....	676	731	619	112	....
Breadth of shoulders	376	355	....	....	....	363	384	335	49	350
Breadth of chest	285	296	....	....	....	287	322	263	59	278
Depth of chest	216	230	....	....	....	224	241	209	32	216
Breadth of hips	305	317	....	....	....	306	330	277	53	294
Length of cubit	447	435	....	....	....	441	473	397	76	445
Length of third finger	108	98	....	....	....	104	114	95	19	105
Length of hand	168	163	....	....	....	170	187	151	36	174
Breadth of hand	82	81	....	....	....	80	89	70	19	81
Length of foot	226	244	....	....	....	244	260	223	37	244
Breadth of foot	105	100	....	....	....	101	109	83	26	98
Length of head	198	183	185	184	178	184	198	173	25	181
Breadth of head	151	153	146	145	146	148	158	140	18	147
Minimum frontal	105	108	....	....	....	105	120	92	28	106
Breadth, bizygomatic	136	140	....	....	....	140	147	131	16	137
Breadth, bigonial	112	105	....	....	....	108	120	95	15	104
Height, menton-crinion	194	180	....	....	....	178	197	157	40	....
Height, menton-nasion	123	112	....	....	....	116	128	107	21	....
Height, prosthyon-nasion	83	69	....	....	....	72	83	64	19	71
Height of nose	51	49	....	....	....	49	56	43	13	48
Breadth of nose	46	43	....	....	....	41	48	34	14	39
Breadth, ocular	74	73	....	....	....	66	74	55	19	65
Breadth of mouth	55	46	....	....	....	54	63	46	17	53
Height of right ear	61	64	....	....	....	63	73	56	17	64
Grip, right hand	100	105	....	....	....	104	160	60	100	81
Grip, left hand	100	75	....	....	....	95	140	60	80	76
Respiration	16	18	....	....	....	20	26	14	12	....
Pulse	60	76	....	....	....	70	96	50	46	....
Indices:										
Height sitting - height	53.2	50.9	....	....	....	52.0	54.8	48.4	6.4	51.2
Span - height	103	107	....	....	....	105	109	101	8	104
Arm - height	46.4	44.0	....	....	....	43.4	46.4	41.1	5.3	....
Cubit - height	29.4	28.0	....	....	....	28.2	29.4	27.3	2.1	....
Foot - height	14.9	15.7	....	....	....	15.6	16.5	14.7	1.8	....
Breadth shoulder - height	24.7	22.2	....	....	....	23.3	24.7	22.1	2.6	....
Breadth hips - breadth shoulders	80.9	89.3	....	....	....	84.3	89.9	78.0	11.9	84.0
Chest	75.8	77.7	....	....	....	78.0	83.0	69.0	14.0	77.7
Hand	48.8	49.7	....	....	....	47.3	51.5	41.3	10.2	46.4
Foot	45.3	40.9	....	....	....	41.3	45.8	35.8	10.0	40.1
Cephalic	76.3	83.6	78.9	77.8	81.4	81.0	85.2	73.7	11.5	81.2
Bizygomatic - breadth head	90.1	91.5	....	....	....	93.4	99.3	84.0	15.3	93.2
Bigonial - bizygomatic	82.4	75.0	....	....	....	77.5	85.5	69.4	16.1	75.8
Upper facial	61.0	49.3	....	....	....	51.7	61.0	46.4	14.6	51.9
Lower facial	91.0	93.7	....	....	....	93.0	106.2	81.2	25.0	....
Total facial	70.1	77.8	....	....	....	78.6	84.6	70.1	14.5	....
Nasal	90.2	87.8	....	....	....	83.7	100.0	71.7	39.3	82.5

TABLE 4.—PARUKUTU

Males	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	Average
Age	40	33	22	22	40	45	35	55	25	26	....
Height	1634	1586	1553	1525	1523	1570	1618	1618	1587	1581	1579
Height to shoulder	1382	1322	1267	1241	....	....	....	....	....	....	1303
Height sitting	850	793	816	787	750	796	864	825	813	825	812
Span	1737	1639	1563	1609	1580	1610	1708	1702	1689	1664	1650
Breadth of shoulders	351	358	336	337	....	....	....	....	....	....	345
Breadth of chest	291	282	256	285	....	....	....	....	....	....	278
Depth of chest	213	225	203	210	....	....	....	....	....	....	213
Breadth of hips	301	283	263	289	....	....	....	....	....	....	284
Length of cubit	474	450	411	432	....	....	....	....	....	....	442
Length of third finger	112	108	94	102	....	....	....	....	....	....	104
Length of hand	182	175	165	175	....	....	....	....	....	....	172
Breadth of hand	79	77	76	76	....	....	....	....	....	....	77
Length of foot	252	235	227	242	....	....	....	....	....	....	239
Breadth of foot	98	91	95	92	....	....	....	....	....	....	94
Length of head	184	175	182	183	183	178	176	178	176	180	180
Breadth of head	148	145	145	147	152	144	145	146	141	151	146
Minimum frontal	102	106	106	105	103	107	98	105	103	107	104
Breadth, bizygomatic	141	135	132	131	136	135	132	136	133	133	134
Breadth, bigonial	102	102	106	98	98	103	103	103	110	102	102
Height, prosthyon-nasion	74	70	72	65	63	62	71	78	72	70	70
Height of nose	54	50	49	44	47	47	47	54	51	46	49
Breadth of nose	40	39	40	39	42	40	42	45	39	38	40
Breadth, ocular	61	71	66	69	67	65	61	62	61	67	65
Breadth of mouth	55	54	51	56	58	50	53	56	48	48	53
Height of right ear	67	62	63	56	63	68	....	....	....	....	63
Grip, right hand	135	110	70	85	85	80	80	70	90	90	89
Grip, left hand	105	110	70	80	85	60	80	65	80	90	83
Respiration	....	....	....	....	....	....	....	....	....	....	....
Pulse	....	....	....	....	....	....	....	....	....	....	....
Indices:											
Height sitting – height	52.0	50.0	52.5	51.6	49.2	50.7	53.4	50.9	51.2	52.2	51.4
Span – height	107	103	100	106	104	103	105	105	106	105	104
Cubit – height	29.0	28.3	26.4	28.3	....	....	....	....	....	....	28.0
Foot – height	15.4	14.8	14.6	15.8	....	....	....	....	....	....	15.1
Breadth shoulder – height	21.4	22.6	21.7	22.1	....	....	....	....	....	....	21.9
Breadth hips – breadth shoulder	85.8	79.6	78.3	85.8	....	....	....	....	....	....	82.4
Chest	73.2	80.4	79.3	73.7	....	....	....	....	....	....	76.6
Hand	43.4	44.0	49.0	46.3	....	....	....	....	....	....	45.7
Foot	38.9	38.7	41.9	38.0	....	....	....	....	....	....	39.4
Cephalic	80.4	82.9	79.7	80.3	83.1	80.9	82.4	82.0	80.1	83.9	81.6
Bizygomatic – breadth head	95.3	93.1	91.1	89.1	89.5	93.8	91.0	93.2	94.3	88.1	91.8
Bigonial – bizygomatic	72.3	75.6	80.3	74.8	72.1	76.3	78.0	75.7	82.7	76.7	75.2
Upper facial	52.5	51.9	54.6	49.6	46.3	45.9	53.8	57.3	54.1	52.6	51.9
Nasal	74.1	78.0	81.6	88.6	89.4	85.1	89.4	83.3	76.5	82.6	82.9

TABLE 5.—DIAU

Males	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	No. 12	No. 13	Average
Age	35	22	55	30	27	30	26	40	40	40	50	30	26	....
Height	1595	1616	1695	1537	1645	1552	1606	1606	1537	1568	1587	1593	1600	1595
Height to shoulder	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Height sitting	805	787	836	790	838	787	845	799	813	793	787	775	838	807
Span	1752	1676	1765	1600	1715	1562	1587	1702	1524	1651	1695	1657	1664	1660
Breadth of shoulders	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth of chest	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Depth of chest	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth of hips	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Length of cubit	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Length of third finger	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Length of hand	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth of hand	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Length of foot	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth of foot	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Length of head	184	178	186	183	188	173	183	188	176	177	182	176	175	181
Breadth of head	151	136	146	147	148	153	148	155	146	145	145	151	139	147
Minimum frontal	114	103	105	104	105	105	109	114	111	105	103	110	103	107
Breadth, bizygomatic	138	128	145	139	142	140	133	143	139	135	138	138	132	138
Breadth, bigonial	111	98	108	106	103	105	107	112	102	106	110	107	101	106
Height, prosthyon-nasion	73	69	88	66	77	70	70	75	66	72	73	68	74	72
Height of nose	48	46	57	47	51	45	47	52	45	48	50	46	46	48
Breadth of nose	41	33	45	38	34	35	38	44	42	37	42	38	36	39
Breadth, ocular	66	63	71	61	64	66	65	72	68	64	....	66	64	66
Breadth of mouth	50	44	60	52	46	53	48	55	58	47	48	52	51	51
Height of right ear	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Grip, right hand	70	75	60	40	60	50	105	50	85	55	60	65	35	61
Grip, left hand	80	65	50	20	50	45	85	40	75	60	55	80	20	56
Respiration	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pulse	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Indices:														
Height sitting – height	50.5	48.7	49.3	51.3	50.9	50.7	52.6	49.8	52.8	50.6	49.6	48.7	52.4	50.6
Span – height	109	104	104	104	104	101	....	106	99	105	107	104	104	104
Cubit – height	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Foot – height	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth shoulder – height	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth hips – breadth shoulder	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chest	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hand	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Foot	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cephalic	82.1	76.4	78.4	80.3	78.7	88.4	80.9	82.5	83.0	81.9	79.7	85.8	79.4	81.4
Bizygomatic – breadth head	91.4	94.1	99.3	94.6	....	91.5	89.9	....	95.2	93.1	95.2	91.4	95.0	93.7
Bigonial – bizygomatic	80.4	76.6	74.5	76.3	72.5	75 0	80.5	78.3	73.4	78.5	79.7	77.5	76.5	76.9
Upper facial	52.9	53.9	60.7	47.8	54 2	50.0	52.6	52.5	42.5	53.3	52.9	49.3	56.1	52.2
Nasal	85.4	71.7	79.0	80.9	66.7	77.8	80.9	84.6	93.3	77.1	84.0	82.6	78 3	80.2

TABLE 6

Males	Waiwai					Cumayena				Urucuena			Catyana
	No. 1	No. 2	No. 3	No. 4	Average	No. 1	No. 2	No. 3	Average	No. 1	No. 2	Average	No. 1
Age	33	35	25	21	....	25	40	30	....	30	40	....	35
Height	1562	1564	1615	1610	1588	1588	1588	1649	1608	1550	1608	1579	1582
Height to shoulder	1320	1327	1342	1331	1330	....	....	....	....	....	....	....	....
Height sitting	798	792	855	843	822	819	821	885	841	795	832	814	....
Span	1628	1627	1702	1688	1661	1605	1660	1695	1653	1608	1648	1628	1617
Breadth of shoulders	340	350	373	351	354	....	....	....	....	....	....	....	367
Breadth of chest	270	275	291	280	279	....	....	....	....	....	....	....	277
Depth of chest	220	216	216	223	219	....	....	....	....	....	....	....	230
Breadth of hips	300	301	312	302	304	....	....	....	....	....	....	....	....
Length of cubit	441	440	450	462	448	....	....	....	....	....	....	....	426
Length of third finger	100	107	110	110	107	....	....	....	....	....	....	....	103
Length of hand	172	170	181	184	177	....	....	....	....	....	....	....	166
Breadth of hand	80	82	86	86	84	....	....	....	....	....	....	....	82
Length of foot	251	249	248	244	248	....	....	....	....	....	....	....	243
Breadth of foot	100	100	106	101	102	....	....	....	....	....	....	....	95
Length of head	179	186	184	189	185	177	172	183	177	193	180	187	176
Breadth of head	145	146	151	147	147	141	142	150	144	154	152	153	143
Minimum frontal	103	101	107	102	103	103	109	105	106	103	112	108	105
Breadth, bizygomatic	134	132	142	136	136	132	133	146	137	149	143	146	140
Breadth, bigonial	98	98	105	106	102	101	103	106	103	115	108	112	105
Height, prosthyon-nasion	73	65	70	73	70	69	72	74	72	83	70	77	68
Height of nose	49	46	49	46	48	45	50	53	49	52	46	49	48
Breadth of nose	40	40	40	43	41	38	36	45	40	45	39	42	39
Breadth, ocular	64	67	67	64	66	63	65	61	63	66	63	65	70
Breadth of mouth	51	54	58	54	54	54	53	60	56	53	49	51	57
Height of right ear	65	63	68	62	65	....	....	....	....	....	....	....	59
Grip, right hand	90	115	105	105	104	85	90	80	85	90	110	100	120
Grip, left hand	90	100	105	100	99	80	80	80	80	80	90	85	120
Respiration	....	....	....	....	....	....	....	....	....	....	....	....	....
Pulse	....	....	....	....	....	....	....	....	....	....	....	....	....
Indices:													
Height sitting - height	51.1	50.6	52.8	52.6	51.7	51.5	51.7	53.6	52.3	51.3	51.4	51.4	....
Span - height	105	105	105	105	105	101	105	103	103	104	103	103	102
Cubit - height	....	....	....	....	....	....	....	....	....	....	....	....	....
Foot - height	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth shoulder - height	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth hips - breadth shoulder	88.2	85.5	83.7	86.1	85.8	....	....	....	....	....	....	....	....
Chest	81.5	78.6	74.3	79.6	78.4	....	....	....	....	....	....	....	83.0
Hand	46.3	48.2	47.5	46.7	47.2	....	....	....	....	....	....	....	49.4
Foot	38.8	40.1	42.7	41.4	40.8	....	....	....	....	....	....	....	38.8
Cephalic	81.6	78.0	82.1	77.8	79.8	79.7	82.6	82.0	81.4	79.8	84.4	82.1	81.2
Bizygomatic - breadth head	91.8	91.0	94.0	92.5	92.3	93.6	93.7	97.3	94.8	96.8	94.1	95.4	97.9
Bigonial - bizygomatic	73.1	74.2	73.9	77.9	74.8	76.5	77.4	72.6	75.5	77.2	75.5	76.3	75.0
Upper facial	54.5	49.2	49.3	53.7	51.6	52.3	54.1	49.3	51.9	55.7	49.0	52.3	48.6
Nasal	81.6	86.9	81.6	83.5	85.6	84.4	72.0	84.9	80.4	86.5	84.8	85.7	81.3

TABLE 7

Males	Chikena No. 1	Toneyena No. 1	Waiwé No. 1	Azumara No. 1	Zapara No. 1	Maximum	Minimum	Range	Comparison of Averages					
									10 Parukutus	13 Diaus	4 Waiwais	3 Cumayenas	2 Urucuena	33 Macusis
Age	22	25	25	40	30	....	....	....	....	....	....	....	....	....
Height	1633	1568	1585	1574	1612	1695	1523	172	1579	1595	1588	1608	1579	1560
Height to shoulder	....	....	....	1275	1322	1382	1241	141	1303	....	1330	....	....	1284
Height sitting	838	800	....	789	823	885	750	135	812	807	822	841	814	810
Span	1752	1615	1674	1620	1705	1765	1524	241	1650	1660	1661	1653	1628	1643
Breadth of shoulders	....	....	....	345	382	358	336	22	345	....	354	....	....	363
Breadth of chest	....	....	....	272	320	291	256	35	278	....	279	....	....	287
Depth of chest	....	....	....	229	236	225	203	22	213	....	219	....	....	224
Breadth of hips	....	....	....	298	326	312	263	49	284	....	304	....	....	306
Length of cubit	....	....	....	453	462	474	411	63	442	....	448	....	....	441
Length of third finger	....	....	....	105	100	112	94	18	104	....	107	....	....	104
Length of hand	....	....	....	174	184	184	170	14	172	....	177	....	....	170
Breadth of hand	....	....	....	81	88	86	76	10	77	....	84	....	....	80
Length of foot	....	....	....	252	264	252	227	25	239	....	248	....	....	244
Breadth of foot	....	....	....	103	105	106	91	15	94	....	102	....	....	101
Length of head	180	180	180	177	182	193	173	20	180	181	185	177	187	184
Breadth of head	148	147	149	138	150	155	141	14	146	147	147	144	153	148
Minimum frontal	105	107	106	105	102	114	98	16	104	107	103	106	108	....
Breadth, bizygomatic	134	132	135	140	136	149	128	21	134	138	136	137	146	140
Breadth, bigonial	105	98	100	100	102	115	98	17	102	106	102	103	112	108
Height, prosthyon-nasion	75	64	70	75	70	88	62	26	70	72	70	72	77	72
Height of nose	53	43	46	52	50	57	44	13	49	48	48	49	49	49
Breadth of nose	43	42	40	38	45	45	33	12	40	39	41	40	42	41
Breadth, ocular	61	64	63	68	52	72	61	11	65	66	66	63	65	66
Breadth of mouth	56	51	49	60	65	58	47	11	53	51	54	56	51	54
Height of right ear	....	....	....	66	65	68	56	12	63	....	65	....	....	....
Grip, right hand	105	80	65	90	110	120	35	85	89	61	104	85	100	104
Grip, left hand	80	90	60	85	105	120	20	100	83	56	99	80	85	95
Respiration	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pulse	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Indices:														
Height sitting – height	51.3	51.0	....	....	....	53.6	48.7	4.9	51.4	50.6	51.7	52.3	51.4	52.0
Span – height	107	103	106	103	106	109	99	10	104	104	105	103	103	105
Cubit – height	....	....	....	....	....	29.0	26.4	2.6	28.0	....	....	....	....	28.2
Foot – height	....	....	....	....	....	15.8	14.6	1.2	15.1	....	....	....	....	....
Breadth shoulder – height	....	....	....	....	....	22.6	21.4	1.2	21.9	....	....	....	....	....
Breadth hips – breadth shoulder	....	....	....	76.7	83.8	88.2	79.6	8.6	82.4	....	85.8	....	....	84.3
Chest	....	....	....	84.2	73.8	83.0	73.2	9.8	76.6	....	78.4	....	....	78.0
Hand	....	....	....	46.6	47.8	49.4	43.4	6.0	45.7	....	47.2	....	....	47.3
Foot	....	....	....	40.9	39.8	42.7	38.0	4.7	39.4	....	40.8	....	....	41.3
Cephalic	82.2	81.7	82.8	78.0	82.4	85.8	76.4	9.4	81.6	81.4	79.8	81.4	82.1	81.0
Bizygomatic – breadth head	90.5	89.8	90.6	....	90.7	99.3	88.1	11.2	91.8	93.7	92.3	94.8	95.4	93.4
Bigonial – bizygomatic	78.3	73.5	74.1	71.4	75.0	82.7	72.1	10.6	75.2	76.9	74.8	75.5	76.3	77.5
Upper facial	56.0	48.5	51.8	53.5	52.2	60.7	42.5	18.2	51.9	52.2	51.6	51.9	52.3	51.7
Lower facial	....	....	....	....	....	....	....	....	....	....	....	....	....	93.0
Total facial	....	....	....	....	....	....	....	....	....	....	....	....	....	78.6
Nasal	81.1	97.7	....	71.7	90.0	97.7	71.7	26.0	82.9	80.2	85.6	80.4	85.7	82.5

TABLE 8.—MACUSI

Females	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10[1]	Average	Maximum	Minimum	Range
Age	21	23	50	25	22	30	40	21	45	40	....	....	....	....
Height	1409	1412	1502	1442	1365	1432	1456	1440	1443	1376	1428	1502	1376	126
Height to shoulder	1138	1144	1196	1154	1098	1150	1177	1182	1190	1115	1154	1196	1098	98
Height to third finger	515	565	585	524	510	508	564	615	565	542	549	615	508	107
Height sitting	760	716	750	768	713	714	795	788	745	740	749	795	713	82
Span	1544	1513	1569	1534	1436	1600	1515	1490	1560	1426	1519	1600	1426	174
Arm length	613	579	611	630	588	642	613	567	625	573	604	642	573	69
Breadth of shoulders	338	324	327	337	307	332	342	319	340	317	328	342	307	35
Breadth of hips	296	292	307	302	251	303	309	291	292	....	291	309	251	58
Length of cubit	390	390	420	397	387	423	397	405	411	388	401	420	388	32
Length of third finger	94	91	101	96	92	102	99	97	102	90	96	102	90	12
Length of hand	159	154	166	161	150	170	160	160	164	150	160	170	150	20
Breadth of hand	71	65	73	70	65	68	73	74	70	75	70	75	65	10
Length of foot	220	226	236	232	214	230	220	232	217	214	224	236	214	22
Breadth of foot	84	82	94	92	79	86	95	91	89	90	88	95	82	13
Length of head	175	162	175	182	162	175	175	172	176	170	172	182	162	20
Breadth of head	145	135	143	155	142	142	147	140	150	148	144	155	135	20
Minimum frontal	102	102	98	104	98	96	102	102	101	106	101	106	96	10
Breadth, bizygomatic	122	127	132	136	126	130	134	129	130	132	130	136	122	14
Breadth, bigonial	100	102	104	106	92	100	107	105	101	103	102	107	92	15
Height, menton-crinion	168	152	162	163	167	171	160	158	173	148	162	173	148	25
Height, menton-nasion	109	100	110	107	104	112	102	108	111	93	106	112	93	19
Height, prosthyon-nasion	68	59	69	66	63	72	64	68	69	59	66	72	59	13
Height of nose	44	41	46	48	40	49	43	47	48	38	44	49	38	11
Breadth of nose	38	34	36	38	29	38	37	33	41	37	36	41	29	12
Breadth, ocular	66	62	59	68	63	57	65	63	66	60	63	68	57	11
Breadth of mouth	50	44	48	55	40	52	49	46	51	58	50	58	40	18
Height of right ear	55	55	59	57	57	65	58	54	56	59	58	65	54	11
Grip, right hand	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Grip, left hand	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Indices:														
Height sitting – height	53.5	54.3	50.1	53.0	52.2	50.1	54.2	54.3	51.6	53.8	52.7	54.3	50.1	4.2
Span – height	109	107	105	106	105	111	104	103	108	103	106	111	103	8
Arm – height	43.5	41.0	40.7	43.7	43.1	43.6	42.1	39.0	43.3	42.3	42.2	43.7	39.0	4.7
Cubit – height	27.6	27.6	27.8	28.2	28.3	29.5	27.2	27.1	28.4	28.2	28.0	29.5	27.1	2.4
Foot – height	16.0	16.0	16.0	16.0	15.1	16.0	15.3	16.0	15.2	16.0	15.7	16.0	15.0	1.
Breadth shoulders – height	24.0	22.9	21.7	23.4	22.5	23.2	23.5	22.2	23.5	23.0	23.0	24.0	21.7	2.3
Breadth hips – breadth shoulders	87.6	90.1	93.9	89.6	81.8	90.7	90.3	92.1	85.9	....	89.1	93.9	81.8	12.1
Hand	44.6	42.2	43.9	42.7	43.3	40.0	45.6	46.3	42.7	48.6	43.9	48.6	40.0	8.6
Foot	38.2	36.3	39.8	39.6	....	37.4	43.4	39.2	41.0	42.0	39.4	43.4	36.3	7.1
Cephalic	82.8	83.3	81.7	85.1	87.6	81.1	84.0	81.3	85.2	87.1	84.0	87.6	81.3	6.3
Bizygomatic – breadth head	84.1	94.1	92.3	87.7	88.7	91.6	91.2	92.1	86.7	89.2	89.9	94.1	86.7	7.4
Bigonial – bizygomatic	81.9	80.3	78.8	77.9	73.0	76.9	79.8	81.4	77.7	78.0	78.5	81.9	73.0	11.9
Upper facial	55.7	46.5	52.3	48.2	50.0	55.4	47.7	52.7	53.0	44.7	50.6	55.7	44.7	11.0
Nasal	86.4	82.9	78.3	79.2	72.5	77.6	86.1	70.2	85.4	97.4	81.6	97.4	70.2	27.2

[1] Additional:

	No. 11	No. 12	No. 13
Length of head	169	170	170
Breadth of head	141	146	143
Cephalic index	83.4	85.9	84.1

TABLE 9

Females	Parakutu						Cumayena				Waiwai		
	No. 1	No. 2	No. 3	No. 4	No. 5	Average	No. 1	No. 2	No. 3	Average	No. 1	No. 2	Average
Age	22	20	40	25	25	....	45	50	35	....	25	30	....
Height	1527	1460	1453	1453	1488	1473	1410	1416	1400	1409	1497	1390	1444
Height to shoulder	....	....	1221	1196	1194	1204	....	....	....	....	1275	1134	1205
Height to third finger	....	....	....	....	....	....	....	....	....	....	....	....	....
Height sitting	775	698	730	769	767	748	720	724	757	734	739	713	726
Span	1612	1485	1556	1523	1528	1541	1445	1451	1471	1456	1556	1428	1492
Arm length	....	....	....	....	....	....	....	....	....	....	....	....	....
Breadth of shoulders	....	....	312	307	330	316	....	....	....	....	334	293	313
Breadth of hips	....	....	295	283	300	289	....	....	....	....	291	286	289
Length of cubit	....	....	460	399	385	429	....	....	....	....	411	385	398
Length of third finger	....	....	95	98	94	96	....	....	....	....	97	90	94
Length of hand	....	....	155	154	157	155	....	....	....	....	162	154	158
Breadth of hand	....	....	67	65	73	68	....	....	....	....	71	70	71
Length of foot	....	....	220	213	211	215	....	....	....	....	220	200	210
Breadth of foot	....	....	81	80	86	82	....	....	....	....	84	85	85
Length of head	173	170	173	166	179	172	178	170	170	173	174	176	175
Breadth of head	147	148	143	141	147	145	136	138	140	138	144	139	142
Minimum frontal	108	110	99	100	100	103	100	105	107	104	103	98	100
Breadth, bizygomatic	134	137	129	121	132	130	127	131	129	129	132	123	128
Breadth, bigonial	100	107	102	96	98	101	97	96	95	96	103	88	96
Height, menton-crinion	....	....	....	....	....	....	....	....	....	....	....	....	....
Height, menton-nasion	....	....	....	....	....	....	....	....	....	....	....	....	....
Height, prosthyon-nasion	69	64	67	63	69	66	64	61	65	63	61	59	60
Height of nose	46	44	46	41	46	45	48	45	42	45	42	39	41
Breadth of nose	38	37	34	33	36	36	35	36	36	36	36	38	37
Breadth, ocular	65	66	68	63	64	65	67	63	62	64	68	64	66
Breadth of mouth	50	45	51	42	50	48	51	53	47	50	46	52	49
Height of right ear	....	....	58	56	54	55	....	....	....	....	59	54	57
Grip, right hand	80	75	35	30	80	60	65	55	55	58	75	65	70
Grip, left hand	85	70	55	45	65	64	50	55	70	58	65	60	63
Indices:													
Height sitting – height	50.7	47.8	50.2	52.9	51.7	50.7	....	....	....	....	49.3	51.3	50.3
Span – height	106	102	106	105	103	104	103	103	105	104	104	103	104
Arm – height	....	....	....	....	....	....	....	....	....	....	....	....	....
Cubit – height	....	....	31.6	27.3	24.5	27.8	....	....	....	....	....	....	....
Foot – height	....	....	15.1	14.6	14.2	14.9	....	....	....	....	14.6	14.3	14.5
Breadth shoulders – height	....	....	21.5	21.1	22.2	21.6	....	....	....	....	22.5	21.1	21.8
Breadth hips – breadth shoulders	....	....	94.5	92.1	90.9	92.5	....	....	....	....	87.1	97.6	92.4
Hand	....	....	43.2	42.2	46.5	43.9	....	....	....	....	43.8	45.5	44.7
Foot	....	....	36.8	37.5	40.8	38.4	....	....	....	....	38.2	42.5	40.4
Cephalic	85.0	87.1	82.7	84.9	....	84.9	76.4	81.2	82.4	80.0	82.8	79.0	80.9
Bizygomatic – breadth head	91.2	92.6	90.2	85.8	....	90.0	83.4	94.9	92.1	90.1	91.7	88.5	90.2
Bigonial – bizygomatic	74.6	78.1	79.1	79.3	....	77.8	76.4	73.3	73.6	74.4	78.0	71.5	74.7
Upper facial	51.5	47.7	51.9	52.1	....	50.8	50.1	46.6	50.4	49.0	46.2	48.0	47.1
Nasal	82.6	84.1	73.9	80.5	....	80.3	72.9	80.0	85.7	79 2	85.7	97.4	91.5

TABLE 10

Females	URUCUANA			CHIKENA			DIAU	CATYANA	PORCKOTO			Average Forest Tribes	(28) General Average
	No. 1	No. 2	Average	No. 1	No. 2	Average	No. 1	No. 1	No. 1	No. 2	Average		
Age	25	25	....	45	30	....	40	25	50	30	....	....	....
Height	1408	1466	1437	1466	1536	1501	1549	1563	1460	1556	1508	1467	1452
Height to shoulder	....	....	....	....	....	....	....	....	1220	1266	1243	1204	1171
Height to third finger	....	....	....	....	....	....	....	....	578	615	597	....	....
Height sitting	748	762	755	730	814	772	825	....	767	832	800	751	746
Span	1472	1521	1499	1472	1536	1508	1636	1645	1500	1585	1544	1522	1520
Arm length	....	....	....	....	....	....	....	....	....	....	....	....	...
Breadth of shoulders	....	....	....	....	....	....	....	377	330	355	343	326	327
Breadth of hips	....	....	....	....	....	....	....	....	311	338	325	289	292
Length of cubit	....	....	....	....	....	....	....	444	391	422	407	421	408
Length of third finger	....	....	....	....	....	....	....	100	94	97	96	96	96
Length of hand	....	....	....	....	....	....	....	175	153	162	158	159	160
Breadth of hand	....	....	....	....	....	....	....	79	71	78	75	70	70
Length of foot	....	....	....	....	....	....	....	241	222	231	227	218	222
Breadth of foot	....	....	....	....	....	....	....	93	86	87	87	83	86
Length of head	167	167	167	176	175	176	177	178	162	176	169	173	172
Breadth of head	141	141	141	135	141	138	143	146	137	142	140	142	143
Minimum frontal	103	105	104	104	105	105	100	107	105	116	111	104	102
Breadth, bizygomatic	130	132	131	127	132	128	131	134	135	138	137	130	130
Breadth, bigonial	103	98	101	96	100	98	98	99	103	102	103	99	100
Height, menton-crinion	....	....	....	....	....	....	....	....	163	175	169	....	....
Height, menton-nasion	....	....	....	....	....	....	....	....	104	114	109	....	....
Height, prosthyon-nasion	68	63	66	64	58	61	69	69	75	67	71	65	65
Height of nose	43	45	44	44	40	42	45	49	45	52	49	44	44
Breadth of nose	34	36	35	38	36	37	33	36	36	41	39	36	36
Breadth, ocular	62	63	63	66	65	66	62	64	64	73	69	65	64
Breadth of mouth	47	48	48	48	52	50	49	48	50	54	52	49	49
Height of right ear	....	....	....	....	....	....	....	57	61	66	64	56	57
Grip, right hand	55	45	50	45	75	60	30	90	80	95	88	60	....
Grip, left hand	45	50	48	45	70	58	30	115	65	75	70	57	....
Indices:													
Height sitting - height	....	....	....	....	....	....	....	....	....	....	....	50.6	51.8
Span - height	105	104	104	101	100	101	106	105	103	102	103	104	105
Arm - height	....	....	....	....	....	....	....	....	....	....	....	....	....
Cubit - height	....	....	....	....	....	....	....	....	....	....	....	27.8	27.9
Foot - height	....	....	....	....	....	....	....	....	....	....	....	14.5	15.3
Breadth shoulders - height	....	....	....	....	....	....	....	....	....	....	....	21.7	22.5
Breadth hips - breadth shoulders	....	....	....	....	....	....	....	....	87.6	85.9	86.7	91.6	90.1
Hand	....	....	....	....	....	....	....	45.1	46.5	48.2	47.3	44.7	44.2
Foot	....	....	....	....	....	....	....	38.6	38.7	37.7	38.2	39.1	39.3
Cephalic	84.4	84.4	84.4	76.7	80.6	78.7	80.8	82.0	84.1	86.7	82.4	82.0	83.0
Bizygomatic - breadth head	92.2	93.6	92.9	94.1	93.6	93.9	91.6	91.8	98.5	97.2	97.9	91.2	90.6
Bigonial - bizygomatic	79.2	75.0	77.1	75.6	75.8	75.7	74.8	73.9	76.3	73.9	75.1	75.9	76.9
Upper facial	52.3	47.7	50.0	50.4	43.9	48.2	52.7	51.5	55.6	48.6	52.1	49.7	50.0
Nasal	79.1	80.0	79.5	86.4	90.0	88.2	73.7	73.5	80.0	78.9	79.5	81.6	81.6

TABLE 11.—COMPARISON OF AVERAGES

Females	Average Savannah Females, Carib	Average Forest Females, Carib		Average Savannah Males, Carib	Average, Forest Males, Carib		Average Savannah Males, Arawak	Average Forest Males, Arawak	Average Total 62 Male Caribs	Average Total 32 Male Arawaks	
Age	....	....	....	....	....	....	....	....	....	....	....
Height	1428	1467	+39	1560	1589	+29	1573	1606	1577	1594	+17
Height to shoulder	1154	1204	+50	1284	1312	+28	1276	....	1291	1305	+14
Height to third finger	549	....	....	607	....	....	607	....	607	604	−3
Height sitting	749	751	+2	810	814	+4	816	817	815	819	−7
Span	1519	1522	+3	1643	1654	+11	1662	1680	1649	1671	+22
Arm length	604	....	....	676	....	....	681	....	676	705	+29
Breadth of shoulders	328	326	−2	363	350	−13	369	....	360	368	+8
Breadth of chest	....	....	....	287	278	....	295	....	285	297	+12
Depth of chest	....	....	....	224	216	....	223	....	223	227	+4
Breadth of hips	294	289	−5	306	294	−12	305	....	304	307	+3
Length of cubit	401	421	+20	441	445	+3	443	....	442	442	0
Length of third finger	96	96	0	104	105	+1	104	....	104	105	+1
Length of hand	160	159	−1	170	174	+4	172	....	171	173	+2
Breadth of hand	70	70	0	80	81	+1	83	....	81	81	0
Length of foot	224	218	−6	244	244	0	250	....	244	249	+5
Breadth of foot	88	83	−5	101	98	−3	102	....	101	101	0
Length of head	172	173	+1	184	181	−3	187	184	182	185	+3
Breadth of head	144	142	−2	148	147	−1	148	148	148	148	0
Minimum frontal	101	104	+3	105	105	0	109	105	105	106	+1
Breadth, bizygomatic	130	130	0	140	137	−3	140	139	138	139	+1
Breadth, bigonial	102	99	−3	108	104	−4	111	106	106	107	+1
Height, menton-crinion	162	....	....	178	....	....	176	....	178	181	+3
Height, menton-nasion	....	....	....	....	....	....	....	....	....	....	....
Height, prosthyon-nasion	66	65	−1	72	71	−1	70	74	72	73	+1
Height of nose	44	44	0	49	48	−1	48	49	49	48	−1
Breadth of nose	36	36	0	41	39	−2	42	41	40	41	+1
Breadth, ocular	63	65	+2	66	65	−1	67	67	66	67	+1
Breadth of mouth	50	49	−1	54	53	−1	56	55	53	55	+2
Height of right ear	58	56	−2	63	64	+1	61	63	63	62	−1
Grip, right hand	....	60	....	104	81	−23	113	100	89	101	+12
Grip, left hand	....	57	....	95	76	−19	100	84	83	89	+6
Indices:											
Height sitting – height	52.7	50.6	....	52.0	51.2	....	51.9	50.8	51.6	51.4	....
Span – height	106	104	....	105	104	....	106	105	105	105	....
Arm – height	42.2	....	....	43.4	....	....	43.5	....	43.4	44.6	....
Cubit – height	28.0	27.8	....	28.2	....	....	28.3	....	28.2	27.8	....
Foot – height	15.7	14.5	....	15.6	....	....	16.2	....	15.6	15.9	....
Breadth shoulders – height	23.0	21.7	....	23.3	....	....	23.3	....	23.3	23.1	....
Breadth hips – breadth shoulders	89.1	91.6	....	84.3	84.0	....	82.8	....	84.0	83.3	....
Hand	43.9	44.7	....	47.3	46.4	....	48.5	....	47.1	46.7	....
Foot	39.4	39.1	....	41.3	40.1	....	41.0	....	41.1	40.5	....
Cephalic	83.5	82.0	....	80.5	81.2	....	79.1	80.4	81.2	80.0	....
Bizygomatic – breadth head	89.9	91.2	....	93.4	93.2	....	94.7	94.5	93.3	94.0	....
Bigonial – bizygomatic	78.5	75.9	....	77.5	75.8	....	79.1	76.1	76.3	76.9	....
Upper facial	50.6	49.7	....	51.7	51.9	....	50.2	52.0	51.8	52.5	....
Nasal	81.6	81.6	....	83.7	82.5	....	85.9	84.2	83.0	84.6	....

Comparison of Measurements

The most interesting results obtained from a study of the physical measurements are the very marked differences existing between the forest and the savannah tribes. The forest tribes are taller, have longer legs and arms, more slender bodies, smaller faces and heads than their relatives in the savannahs; and this applies to both sexes.

This observation leads us to examine the neighboring Arawak tribes of the forests and the savannah, where we find the same thing true to about the same extent.

Height

Table 11 gives a comparison of all the measurements, with differences indicated in adjoining columns by + and – signs.

Table 12 shows the difference in height between the males of the two groups to be 29 mm. and between the females 39 mm. Table 13 shows a corresponding difference in height of 33 mm. and 26 mm. among the Arawaks.

TABLE 12.—HEIGHT, CARIBS

Tribes	Number	Males	Number	Females	Sex Difference
Forest	36	1589	10	1467	122
Savannah	33	1560	16	1428	132
Difference	..	29	...	39	...

TABLE 13.—HEIGHT, ARAWAKS

Tribes	Number	Males	Number	Females	Sex Difference
Forest	19	1606	15	1478	128
Savannah	9	1573	1	1452	121
Difference	..	33	..	26	..

When a comparison is made between the Arawak and Carib stocks of the two localities it is seen by Tables 14 and 15 that the stock differences are greater than the locality differences; that is, the forest Caribs more nearly resemble the forest Arawaks than they do the savannah Caribs. Again, the same thing holds true for both sexes. The difference between the forest Caribs and the forest Arawaks is 17 mm., while the difference between the forest Caribs and the savannah Caribs is 28 mm. for males and 11 mm. and 39 mm. respectively for females.

TABLE 14.—HEIGHT, MALES

Stocks	Number	Forest	Number	Savannah	Stock Difference
Arawak	19	1606	9	1573	33
Carib	36	1589	33	1560	29
Locality	..	17	..	13	..
Difference	..	..	..	..	..

TABLE 15.—HEIGHT, FEMALES

Stocks	Number	Forest	Number	Savannah	Stock Difference
Arawak	15	1478	1	1452	26
Carib	19	1467	9	1428	39
Locality	..	11	..	24	..
Difference	..	..	..	..	..

In Table 16 the height of all the Caribs is compared with that of all the Arawaks revealing a difference in favor of the Arawak males of 17 mm. and of the females of 27 mm.

TABLE 16.—HEIGHT, TOTALS

Stocks	Number	Males	Number	Females	Sex Difference
Arawak	32	1594	18	1479	115
Carib	69	1577	28	1452	125
Difference	..	17	..	27	...

The Trunk

The measurements of the trunk are even more interesting than those already considered. The differences between the two groups are greater than the differences in height would indicate. Unfortunately, the height to the sternal notch was not taken, so it is not possible to get the length of the trunk.

Table 17 shows the sitting height, which is a very difficult measurement to take with great accuracy where there are no floors, boxes or chairs. The small differences of 4 mm. and 2 mm. between the groups is due, no doubt, to the longer necks of the forest tribes rather than to the length of their bodies.

TABLE 17

Tribes	Height Sitting		Leg Length		Arm Length	
	Males	Females	Males	Females	Males	Females
Forest	814	751	775	716	652	598
Savannah	810	749	750	679	640	595
Differences	4	2	25	37	12	3

In Table 18, where we get the most exact measurements, as in the breadth of the shoulders and the hips, we find the unexpectedly large difference of 13 mm. and 12 mm. The differences of 9 mm. and 8 mm. in the breadth and depth of the chest are not great, but they correspond perfectly with the other differences. The difference between the chest differences is only 1 mm., which is the same exactly as that between the shoulder and hip differences. This would indicate that the two groups have bodies of the same form, differing only in size. The shoulder and hip measurements of females show the same relative differences as already observed for the males.

TABLE 18.—TRUNK

Tribes	Number	Breadth, Shoulders	Breadth, Chest	Depth, Chest	Breadth, Hips	Breadth, Shoulders	Breadth, Hips
Forest	36	350	278	216	294	326	289
Savannah	33	363	287	224	306	328	294
Difference	..	−13	−9	−8	−12	−2	−5

The Limbs

We should naturally expect to find the taller group with longer limbs. Nearly all the difference in height is due to the longer legs of the forest tribes. In Table 17 the leg length is determined by subtracting the sitting height from the stature and the arm length by subtracting the breadth of shoulders from the span. These are not exact measurements of the limbs but they are just as valuable for comparative purposes. The arm length in the large table was a direct measurement; that is, the difference between the height to the shoulder and the height to the third finger. The difference in leg length for males is 25 mm. and for females 37 mm. The difference in arm length for males is 12 mm. and for females 3 mm. The hands of the two groups are nearly the same size with the exception that the length in the male forest group is 4 mm. longer. The feet of the two male groups are the same length, but the breadth of the savannah group is 3 mm. greater. The females of the savannah group have feet 6 mm. longer and 5 mm. broader than those of the forest group. This spreading out of the feet may be due to the great amount of walking done by the savannah group. They do more walking simply because the open grass country is inviting.

The span or arm reach among the forest group is not so great in proportion to the height as it is among the savannah group, although it is actually greater by 11 mm. and 3 mm.; the ratio in the forest group is 104 in both sexes, while it is 105 and 106 in the other group. The ratio among the North American Sioux of both sexes is 105, while 104 is normal among Europeans.

The Head and Face

All the head, face and nose measurements of the forest group are less than those of the savannah group. The length of the head is 3 mm. shorter, the breadth 1 mm. less; the breadth of the upper face is less by 3 mm., the lower face by 4 mm., the height by 1 mm., the height of the nose by 1 mm. and the breadth by 2 mm. See Tables 19 and 20. These differences are not great, but they are all on the one side and they are about what should be expected among normal unrelated groups having the same differences in stature. The smaller head and body accompany the greater stature. Table 21 shows that the same differences hold true for the two Arawak groups.

TABLE 19.—HEAD

Tribes	Number	Length	Breadth	Minimum Frontal
Forest	36	181	147	105
Savannah	33	184	148	105
Difference	..	−3	−1	0

TABLE 20.—FACE

Tribes	Number	Bizygomatic	Bigonial	Height	Height, Nose	Breadth, Nose
Forest	36	137	104	71	48	39
Savannah	33	140	108	72	49	41
Difference	..	−3	−4	−1	−1	−2

TABLE 21.—HEAD AND FACE, ARAWAK

Tribes	Number	Head Length	Head Breadth	Bizygomatic	Bigonial
Forest	19	184	148	139	106
Savannah	9	187	148	140	111
Difference	..	−3	0	−1	−5

The strength of the forearm, as revealed in the hand grip, is greater among the savannah tribes of Caribs and Arawaks alike. In every group the right hand is stronger than the left as would be expected among a right-handed people. Very few left-handed individuals were found. The differences between the two groups are for the Caribs right hand 23, left 19, and for the Arawaks right 13 and left 16. The total difference in favor of the Arawaks is 12 for the right hand and 6 for the left. The savannah tribes do more work with their hands, in connection with agriculture and canoeing, than forest tribes do and thus develop more strength in their forearms.

Sex Differences

Some of the sex differences between the two groups are worth noting. In stature, the difference between males and females of the forests is 122 mm., while the corresponding difference in the other, which is the shorter group, is 132 mm. The difference in the forest group of the Arawaks is 28 mm.

To express the difference in comparable terms with other peoples, the stature of the forest females is 92.3% of the stature of the males, while that of the savannah females is 91.5%. It may be well, for the sake of better understanding these sex differences, to compare them with the tall North American Sioux. The average height of the Carib groups is 1577 mm. for males and 1452 mm. for females, showing a sex difference of 125 mm. or 92.7%. The height for the Sioux is 1724 mm. and 1600 mm. respectively. The sex difference among these people of much greater height is 124 mm. or 92.8%.

The sex difference in the span is 129 mm. but the ratio of span to stature is the same in both sexes, or 105. Among the Arawaks the ratio is 104.9 for males and 104 for females. Among the Sioux 105.2 for males and 105.3 for females. Among normal Europeans the ratio is 104 for both sexes.

The most obvious sex differences are those of the breadth of the shoulders and hips. As the people wear no clothing over these parts the measurements were accurately taken and are of extreme value. The savannah people had broader shoulders and hips than those of the forest, but the differences between the females of the two groups were very small, only 2 mm. and 5 mm., while the differences between the males were 13 mm. and 12 mm. The average sex difference was 33 mm. for the shoulders and 12 mm. for the hips. The females, therefore, have relatively narrower shoulders and very much broader hips than the males. The ratio of shoulders to stature for males is 22.8 and for females 22.4, but the ratios of hips to stature are 19.2 and 20.1 respectively.

There are also marked sex differences in the measurements of the head and face and particularly in the ratios of length to breadth. The difference in length of head is 10 mm., of breadth 5 mm., and in cephalic index 1.8. The corresponding differences in the Arawaks are 10 mm., 6 mm. and 1.1, while among the Sioux, they are 7.4 mm., 4.2 mm. and 0.9. The Carib and Arawak women have shorter and rounder heads than the men, a difference much greater than that due to the development of the superciliary ridges in men.

The sex difference in physiognomic height of face (from hair line to chin) is 16 mm., breadth 8 mm., breadth of jaws 6 mm. The Arawak sex differences are: height 16 mm., breadth 10 mm. and jaws 11 mm. And those of the Sioux are: height 10.5 mm. and breadth 6.3 mm. The women have lower and more oval faces than the men.

The nose is noticeably narrower among the women than among the men. The difference in height is 5 mm., in breadth 4 mm. and this results in a difference of 1.4 in the nasal index. There is even a greater sex difference among the Arawaks; height 3 mm., breadth 6 mm. and index 6.0. Among the Sioux, the differences are 3.1 mm., 2.5 mm. and 0.8 respectively.

When the Sioux were selected for comparison in this study, it was done because this tribe is well known to the reader. But the comparison brings out a most interesting fact. In every case above mentioned, the sex differences are greater among the short Carib tribes than among the tall Sioux. The sex difference among the Arawak tribes is practically the same as among the Caribs.

Causes for Differences

It becomes necessary to account, as far as possible, for the differences in the physical development between the forest and savannah groups. The differences cannot be due to contact or miscegination with outside tribes of different physique. The forest tribes were in contact with one another and with other Carib tribes and to some extent with forest Arawaks. The same thing is true with the savannah tribes; they were surrounded with other Caribs and came into touch with Arawaks of the savannah. The causes must be traced directly to the influence of the environment with all that such a statement implies.

The two regions occupied by these groups of peoples, while not far removed from each other, are very different in many respects which directly or indirectly affect the life of man. One is a level grassy plain dotted here and there with isolated mountains, while the other has a dense forest covering its rolling hills about the head streams and along the divide between two drainage systems. The character of the soil and the amount of rainfall affect the development of agriculture. The different elements in the food supply of the two groups are practically the same but differ greatly in proportions, and herein may be found the causes for the differences in the physical development of the groups. The one staple food for the whole region is cassava. In the savannah, this is supplemented by corn, squashes, fish and a little wild game, while in the forest, cassava and game are depended upon almost entirely. Cultivation in the forest is more difficult than in the borders of the savannah because of greater rainfall and ranker growth of annoying vegetation; there is also a greater amount of wild game, hence the forest people depend less upon agriculture and more upon hunting than do the people of the savannahs. The whole question then may be one of diet alone. The subject is worthy of a more careful study by a competent medical man and dietitian.

THE MAP

Our attempts at astronomical observation served us a good purpose all along our way. Among the rubber gatherers and traders in the outside country we were given credit for superior wisdom because we knew the stars, could fix our position by them and could calculate the direction and distances between stations. The taking of observations attracted the attention of the Indians, and I was able to get much star lore that I should have missed otherwise. Our instruments also were of interest to the Indians. The magnet, compass and watch were understood without difficulty; that is, they soon discovered that only certain things were attracted by the magnet, that the compass always pointed in one direction and that the hour hand of the watch always pointed at the sun. They had no use for these things; they always knew their directions and could tell the time of day by looking at the sun. Our binoculars, however, were greatly appreciated. When the moon was in its early or late phases a whole village would sit by the hour, passing the binoculars back and forth, observing the mountains of the moon. They could not understand why I took observations of the stars and not of the moon, yet they knew the moon was nearer to the earth and that it ran in a wobbly course.

The accompanying map is based upon materials obtained and observations made on our journey. Along the rivers we made traverses by the use of a watch and a Brunton compass, and when travelling across country we used a pedometer, watch and compass. These traverses were checked by some four hundred observations of the sun and thirty different stars. This statement is made to call attention to the difficulty one encounters in using a sextant in the tropics. The sun cannot be used at midday for latitude, and in the forest at night one must pick up any star that happens to be showing through the foliage. At the Indian villages we made halts of several days' duration, allowing me to determine the rate of my time. I was able to check up with established stations at both ends of our long journey through the interior. Mr. H. P. C. Melville and Mr. C. W. Anderson fixed the position of Dada Nawa, and Anderson and Dutch engineers at different times had fixed the position of the mouth of the New River on the Corentine. Our latitudes are accurate, but the longitudes are only fair approximations, yet the probabilities are that our map will not be improved upon for another generation. The map shows the route followed by our expedition, the location of the sacred lake of the early Spaniards, Amucu, the group of sacred mountains of the Atarois and Wapisianas and the location of Indian villages.

It may be well to call attention to some mistakes in the earlier maps of the Corentine River region. Maps as late as 1910 show the Corentine flowing due west for fifteen or twenty miles to join the New River, which is flowing northwest. The New is represented as the larger river and its course continued by the Corentine for ten miles. The fact is that the Corentine is the larger river and the New enters from the west at a point where the Corentine has just changed its course to a little east of north and this course is continued for fifteen miles to the mouth of the Lucie River. The Corentine is the straightest river I have ever traversed. If a line were drawn from Cutari Landing at the head of canoe navigation Lat. 2° N. to the west side of the Wanotobo Cataract, Great Falls, the last of the great rapids Lat. 4½° N., it would not be ten miles from the river at any point. The Dutch use the name Corentine to the junction of the New River and call the upper river Coeroene. The Indians say the Sipaliwini is the longest branch of the Corentine; if so then it must be regarded as the source of the Corentine and the international boundary. It would be well for Brazil and the Guianas to delimit their interior boundaries before valuable discoveries make the task more difficult.

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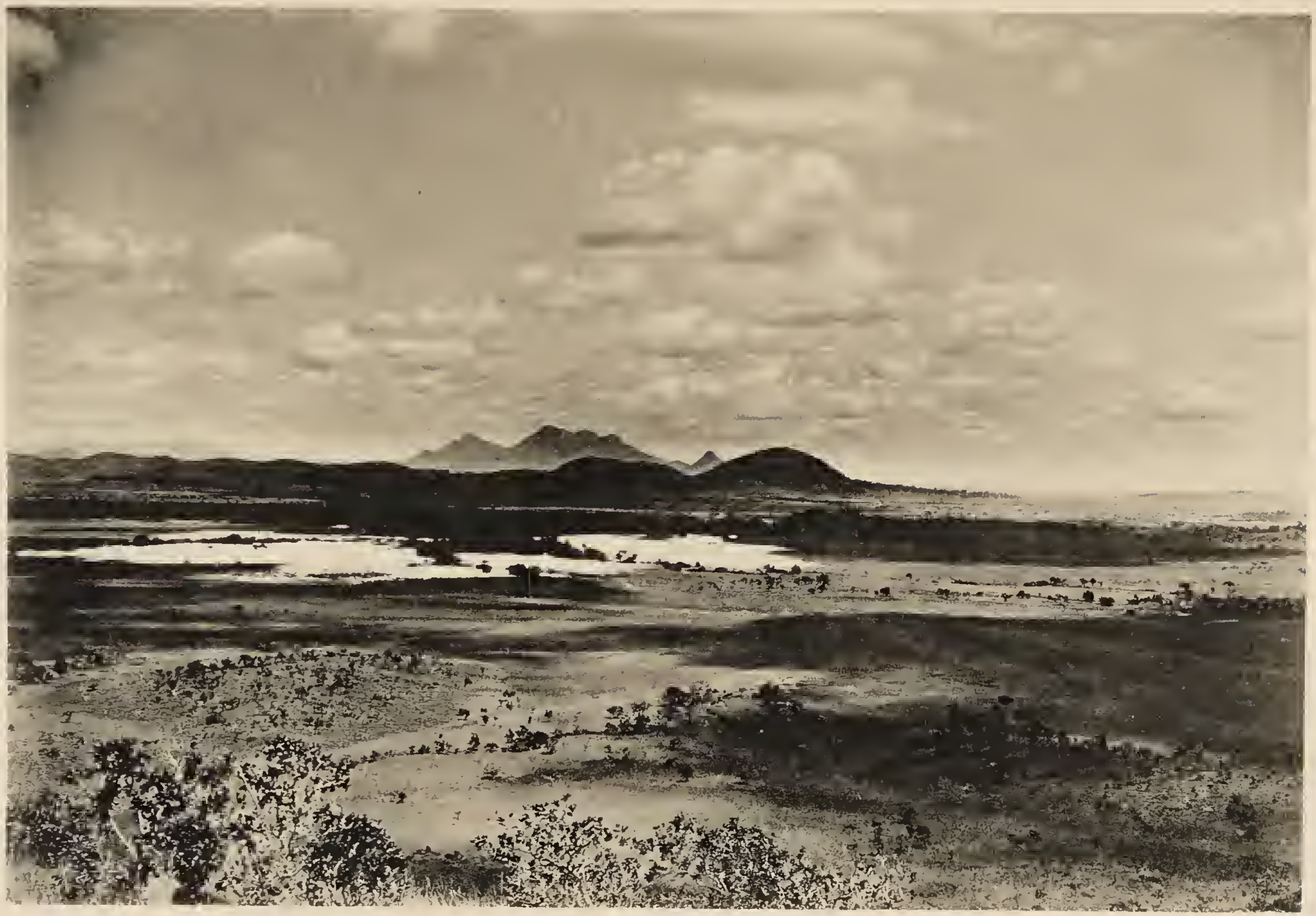
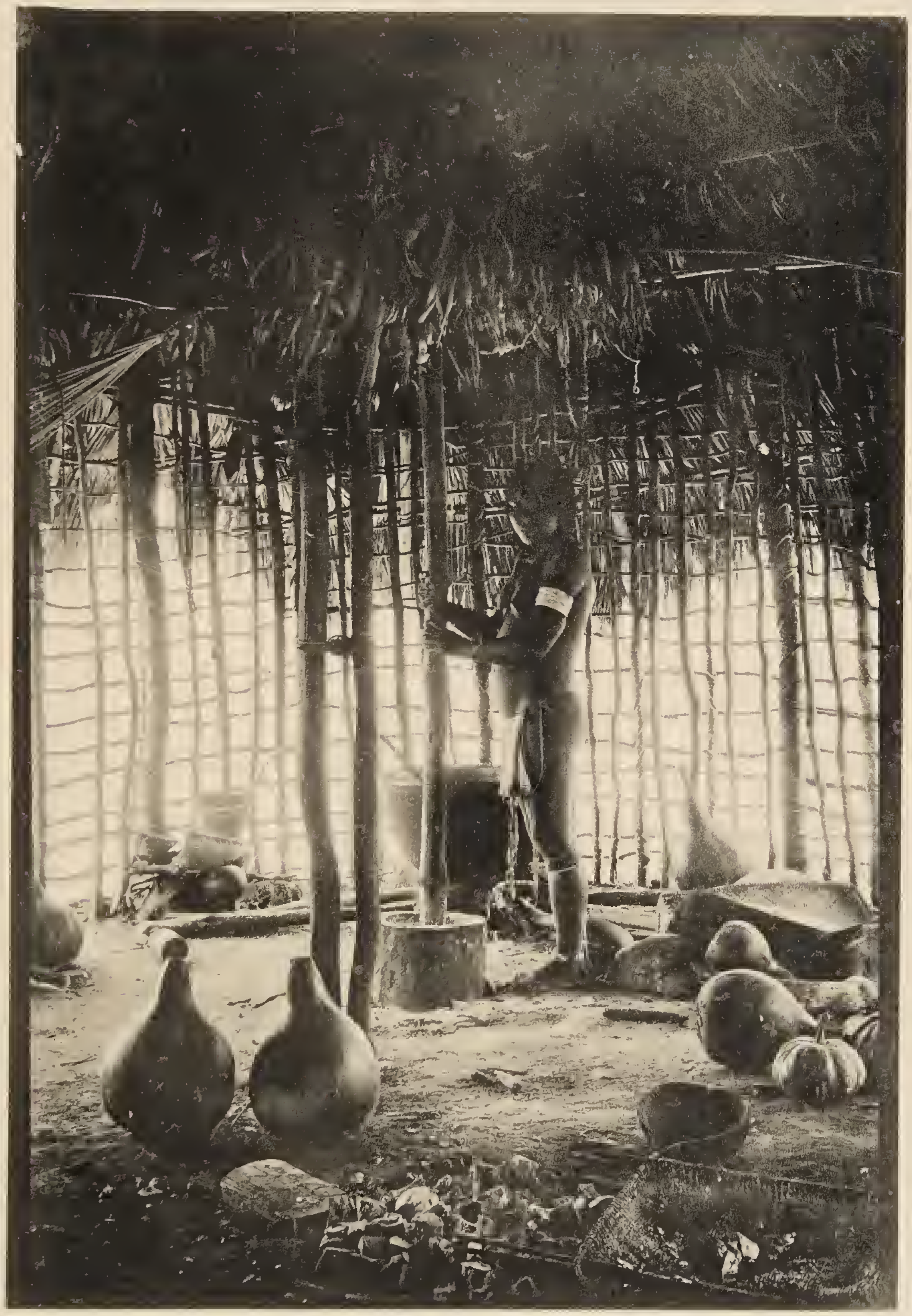
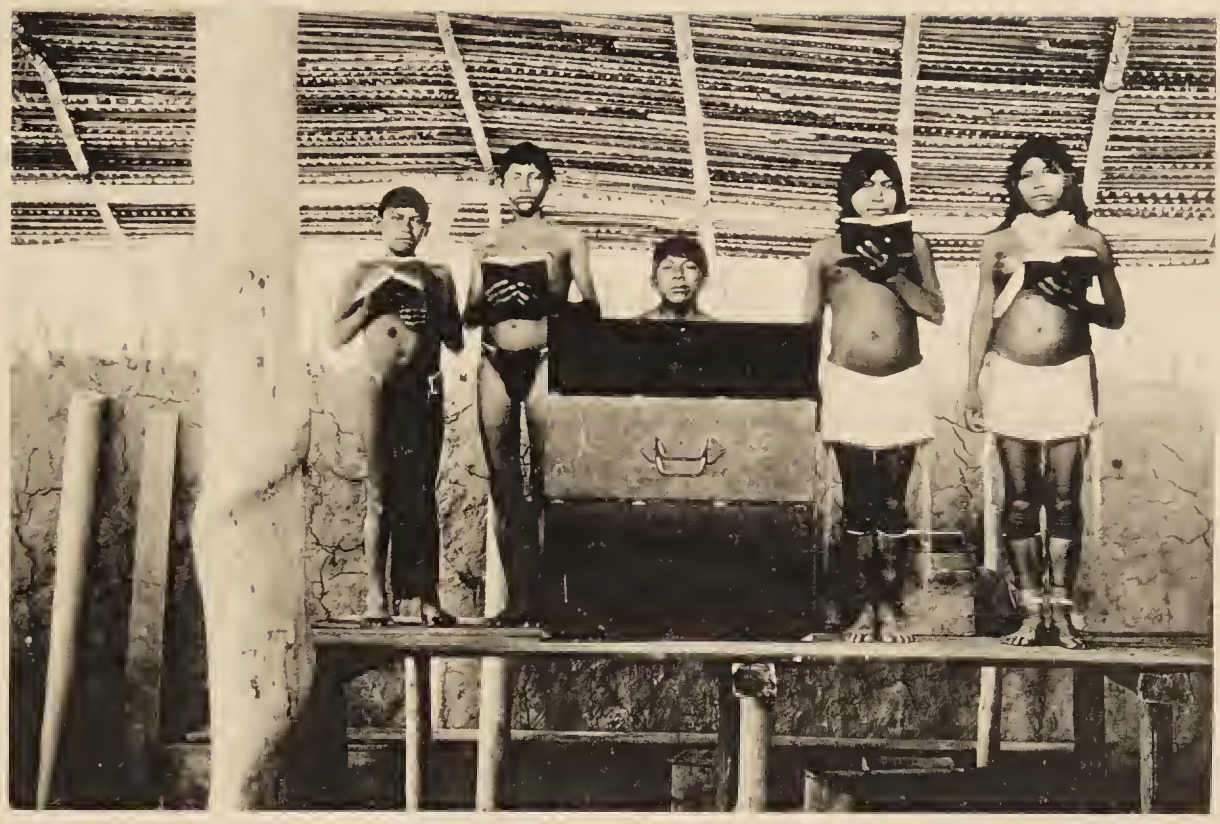


THE SAVANNAH COUNTY OF BRITISH GUIANA



INTERIOR OF WORKHOUSE

MACUSI



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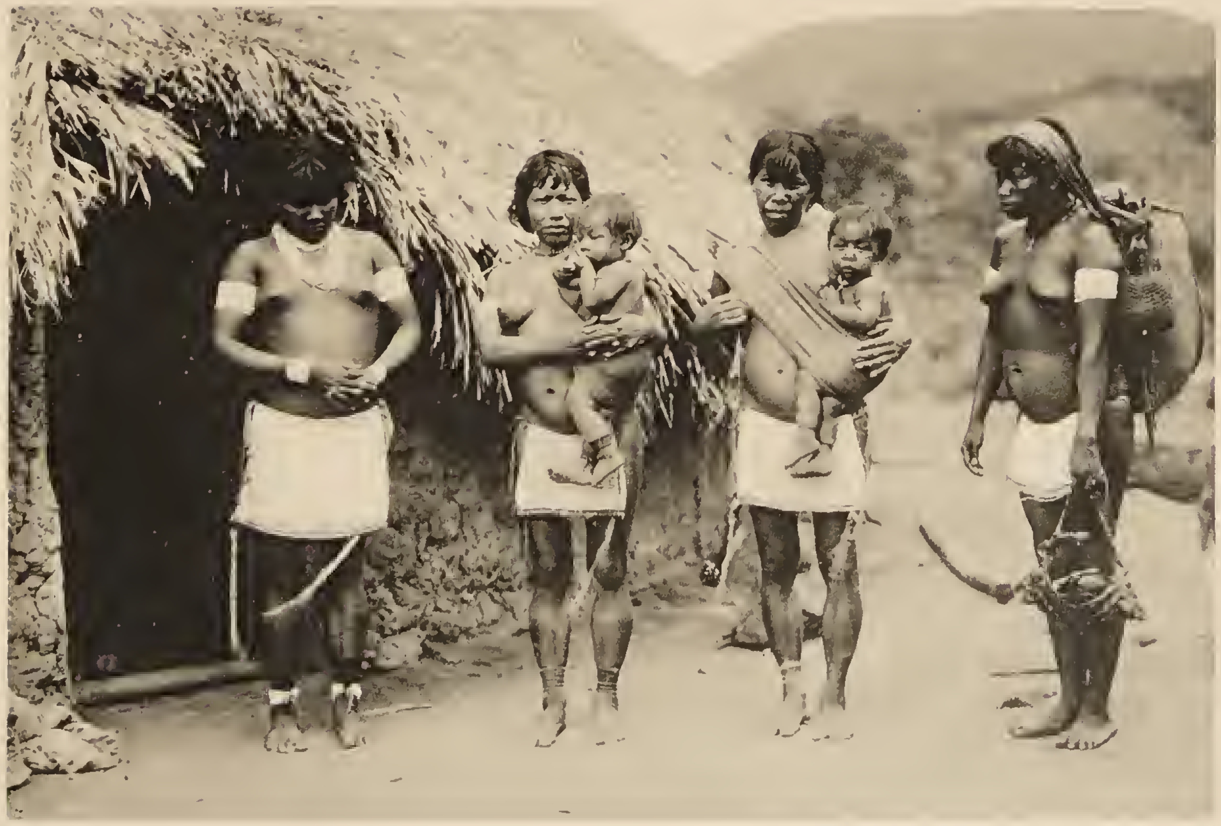
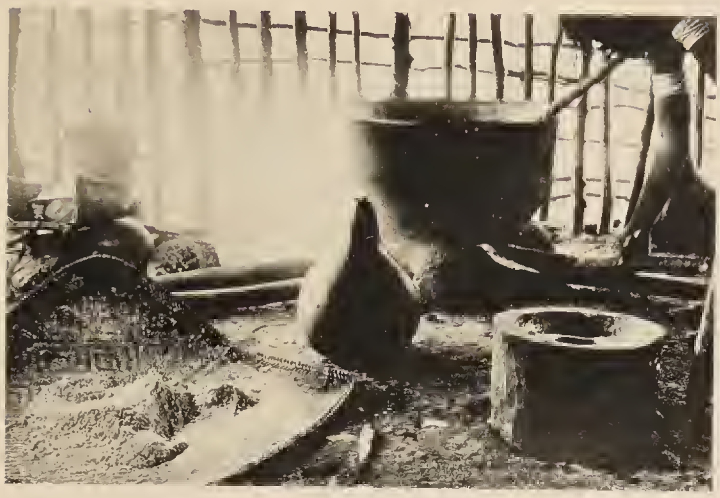


B

A—MACUSI MISSION CHOIR
B—MACUSI WOMEN AND CHILDREN



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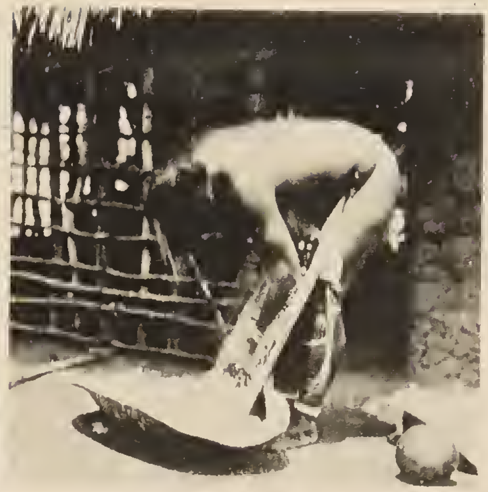

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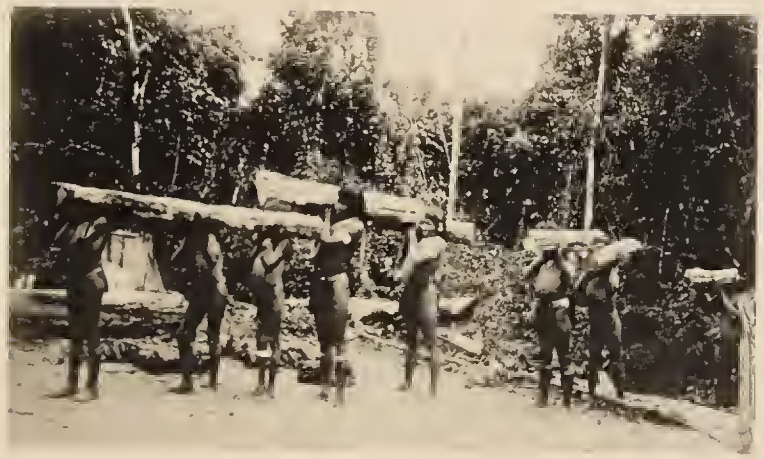

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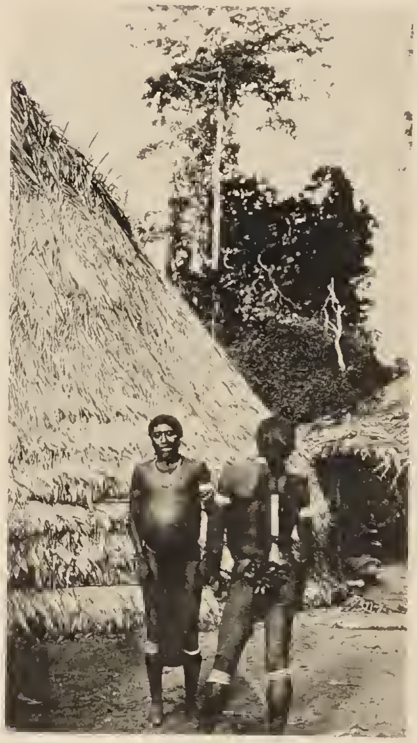

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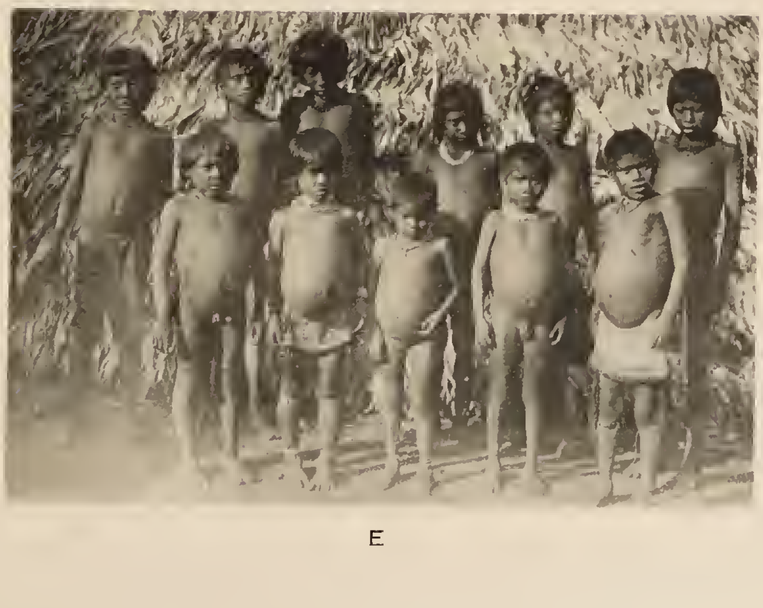

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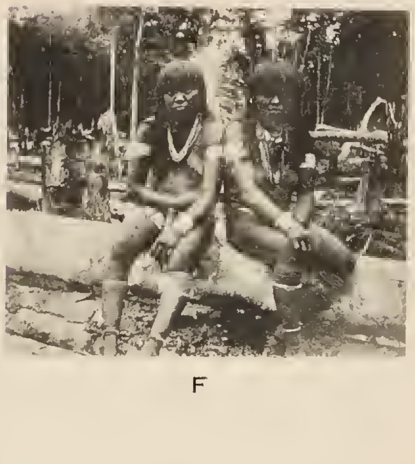
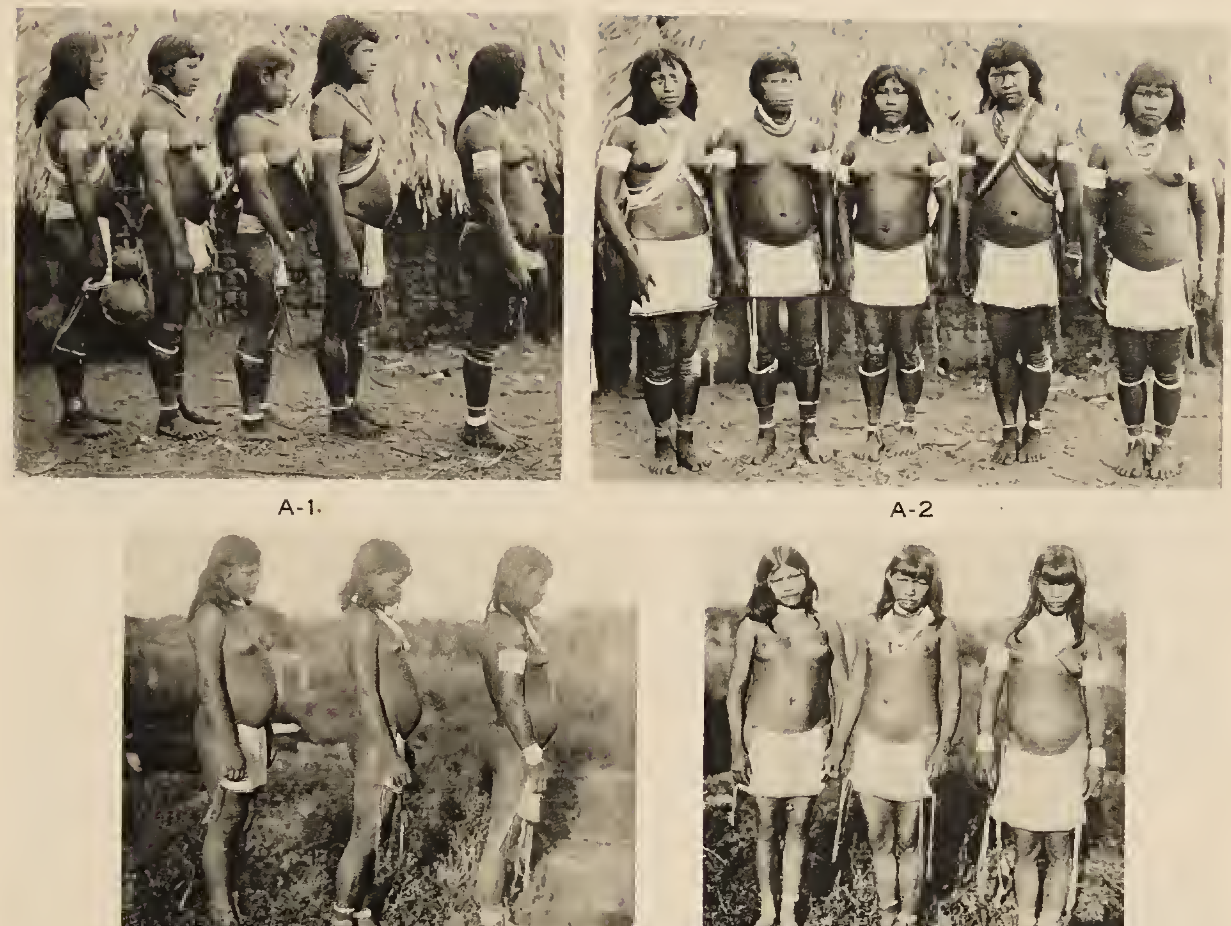


F

A—MACUSI INTERIOR
B—MACUSI WOMAN GRATING CASSAVA
C-D-E-F—WAIWAI

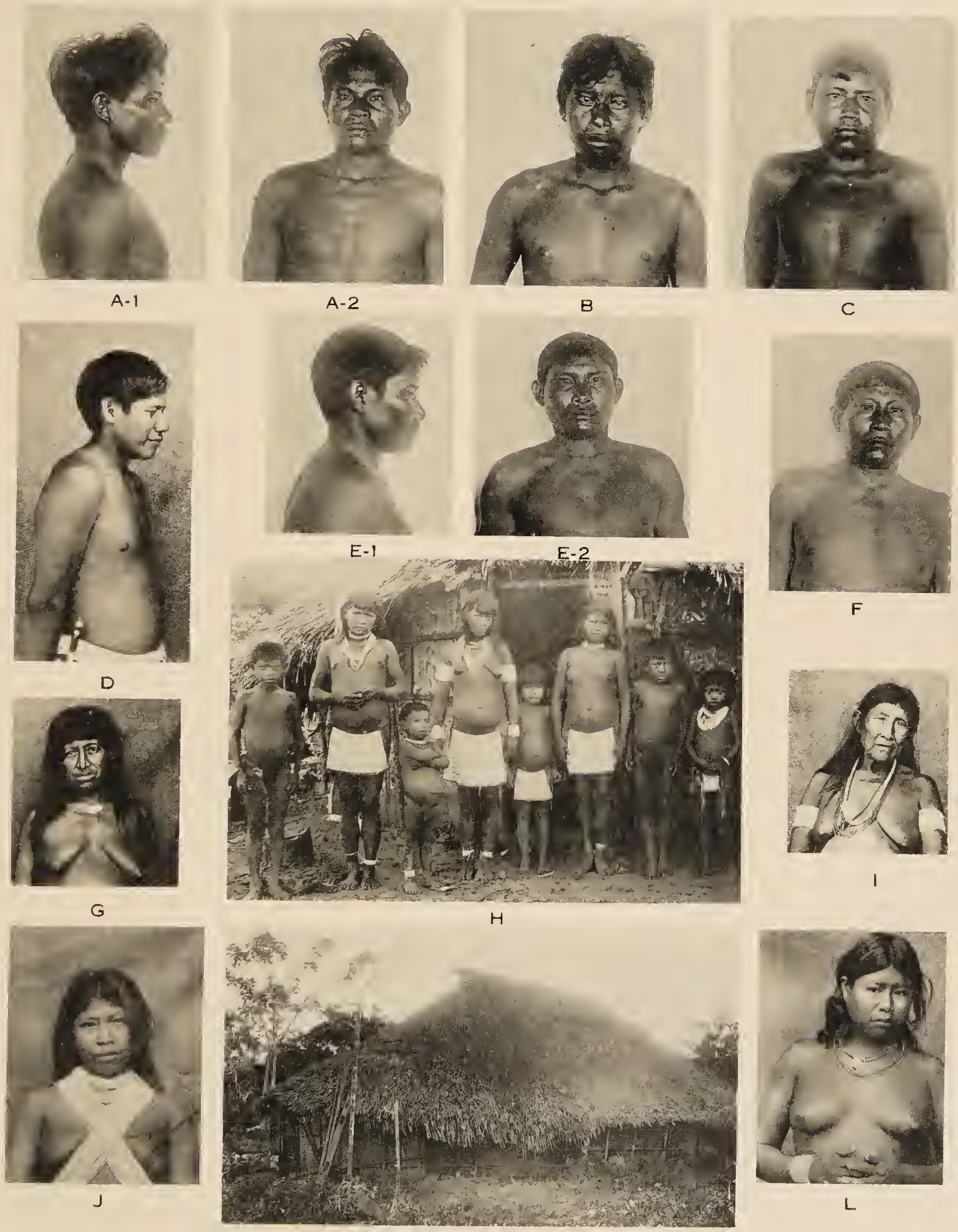


A-1. A-2

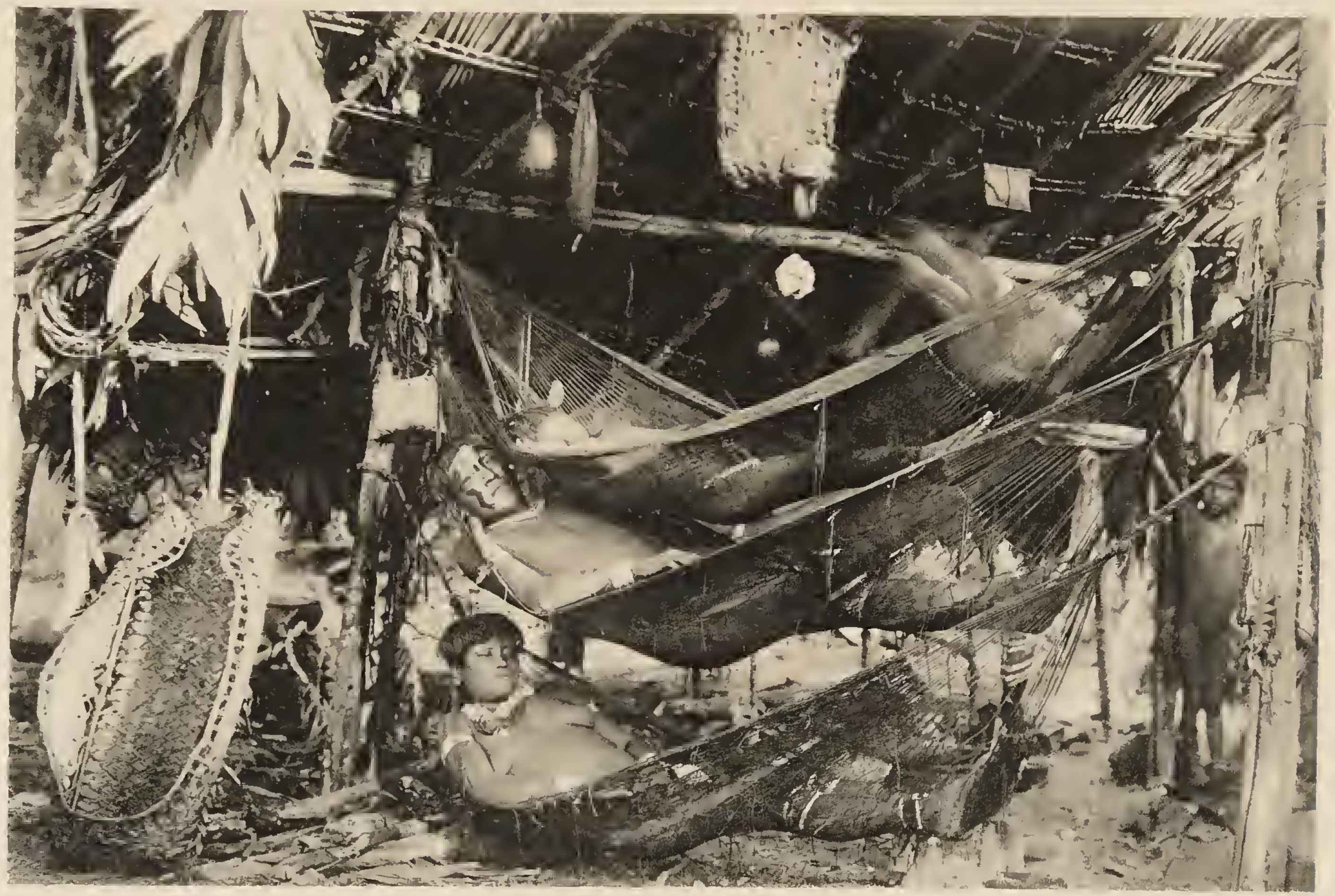
B-1 B-2

C D

MACUSI

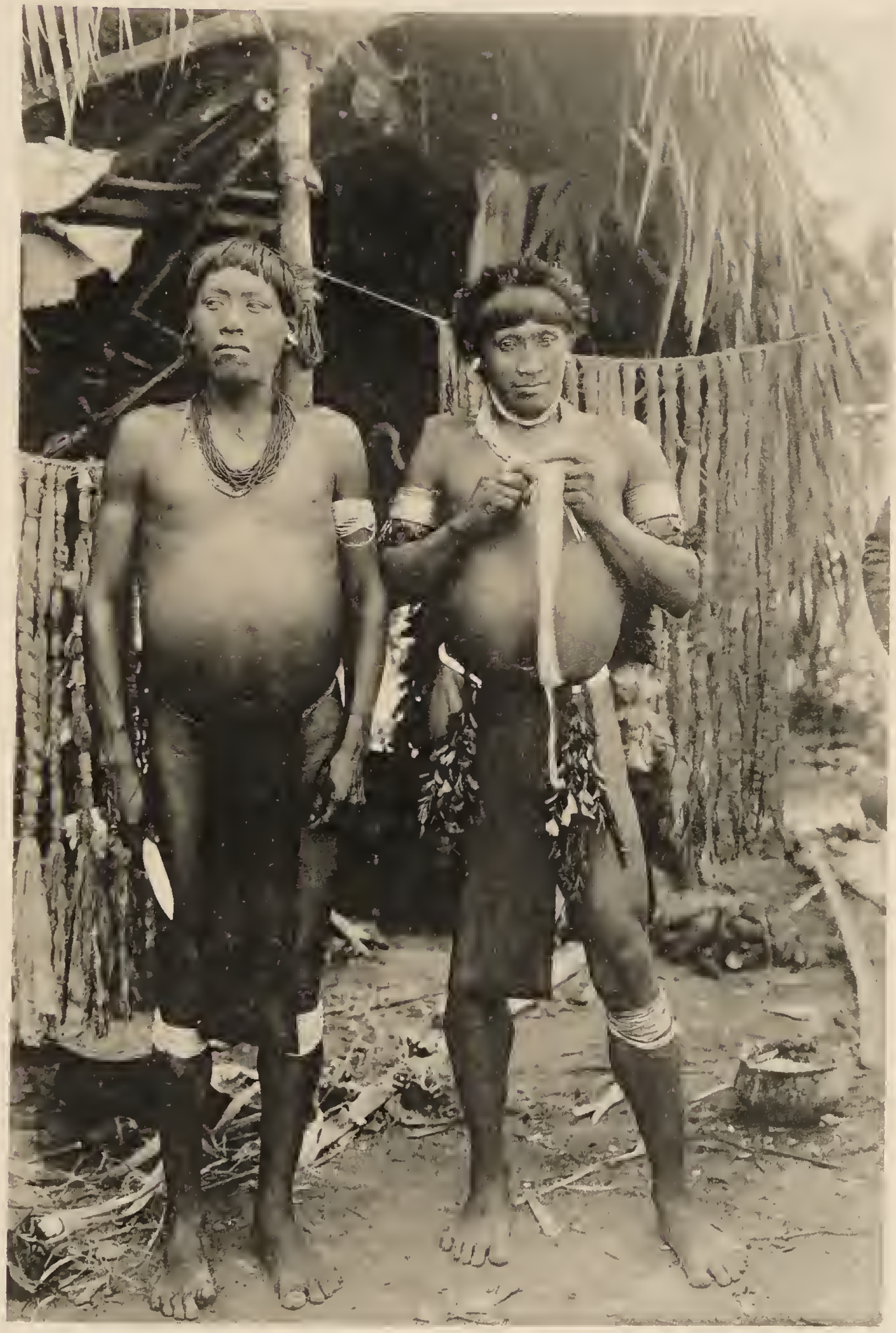


MACUSI

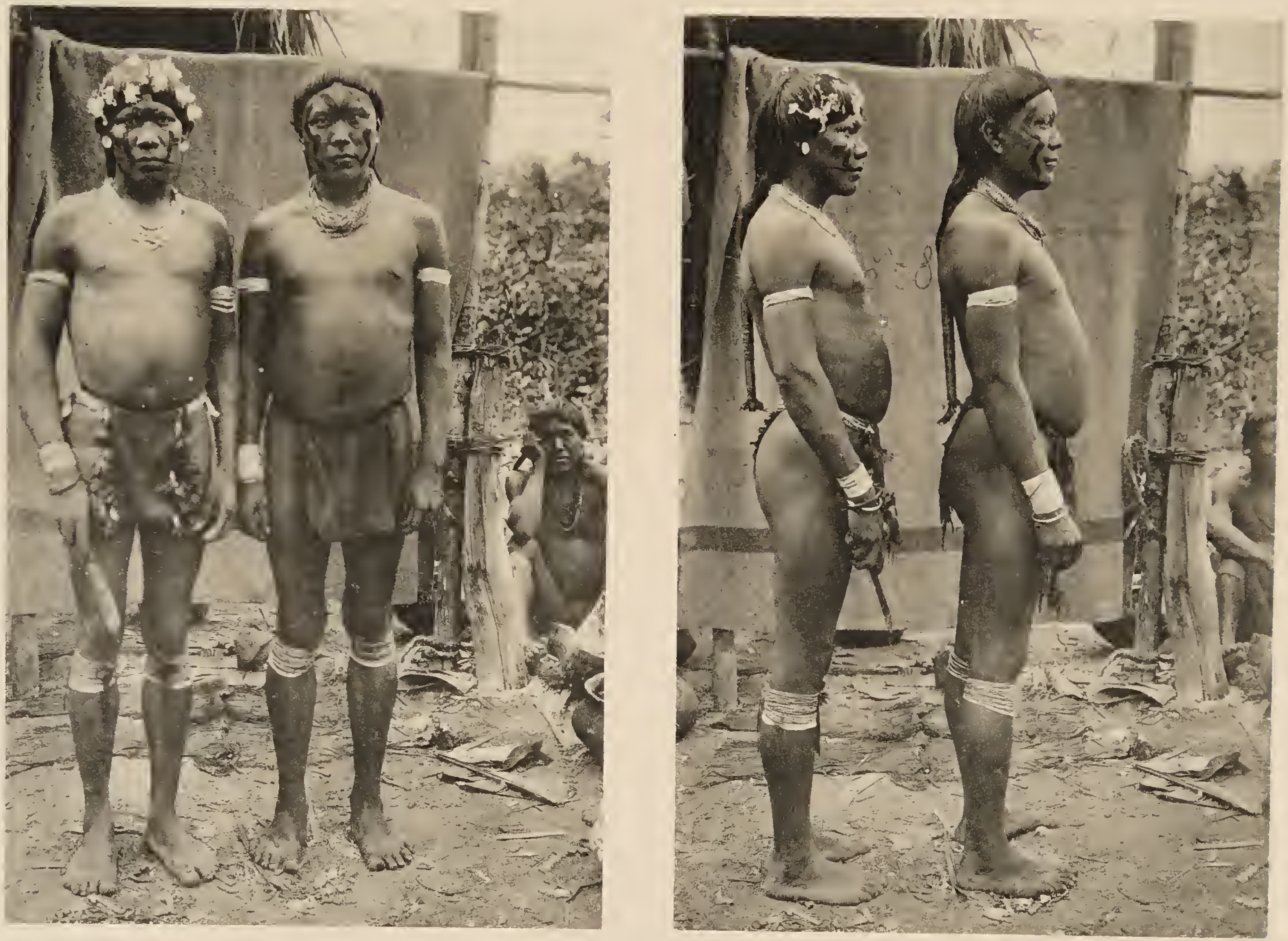


FAMILY IN THEIR HAMMOCKS

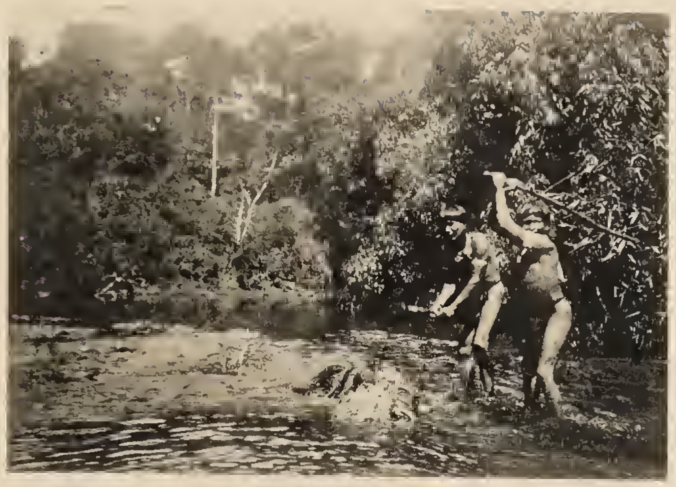
WAIWAI



WAIWAI CHIEFS



WAIWAI MEN



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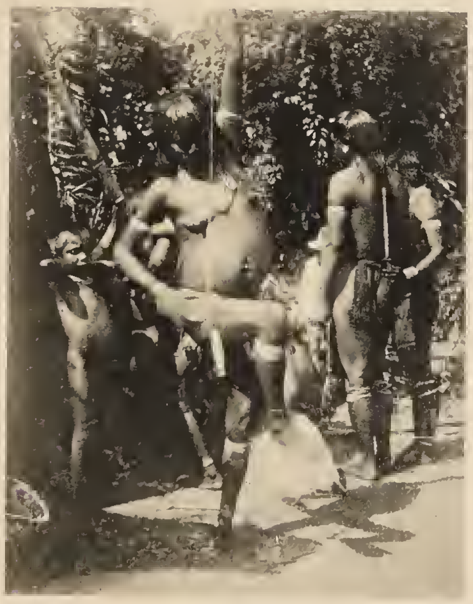

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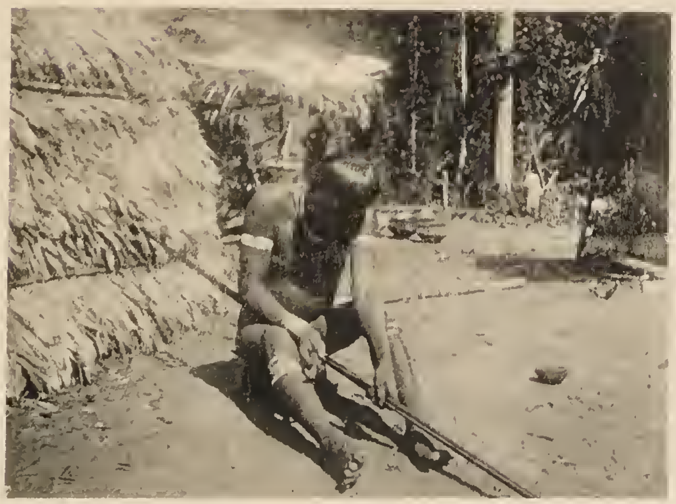
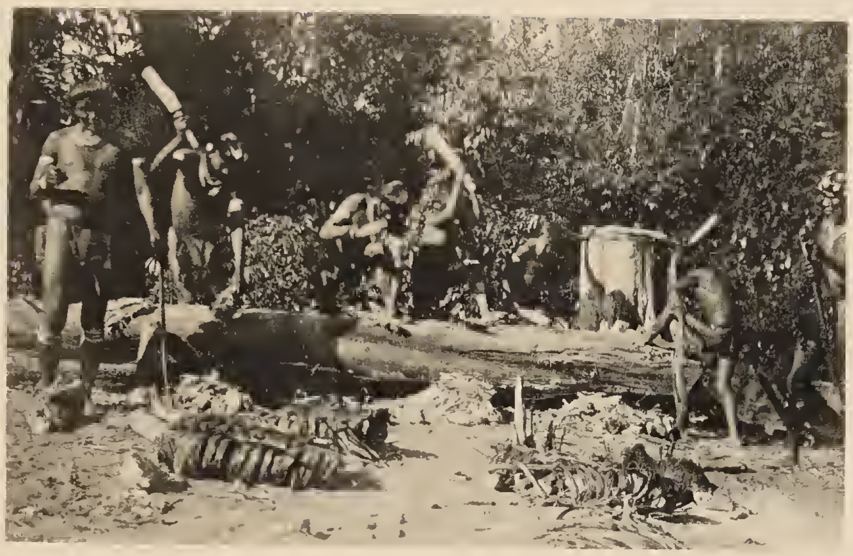


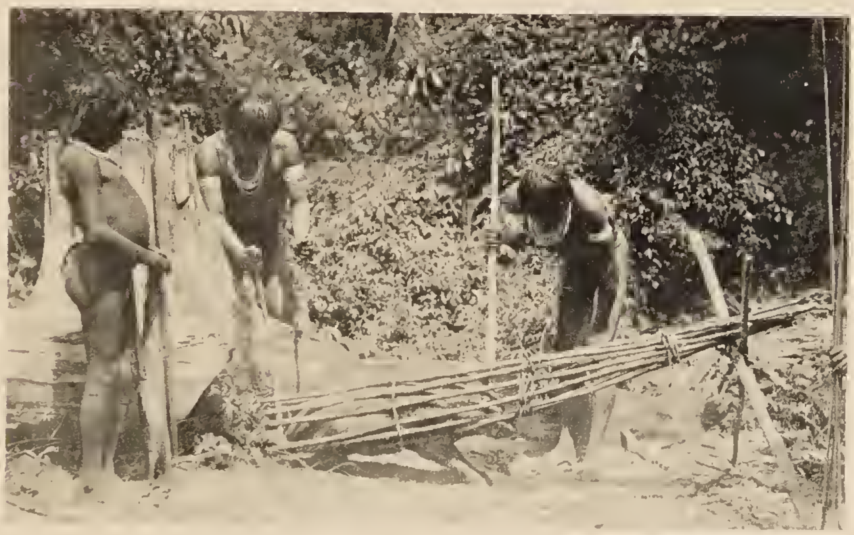
C

A—POUNDING POISON VEIN IN THE RIVER TO KILL FISH
B—WOMAN SPINNING
C—MAN MAKING A BOW

WAIWAI



A



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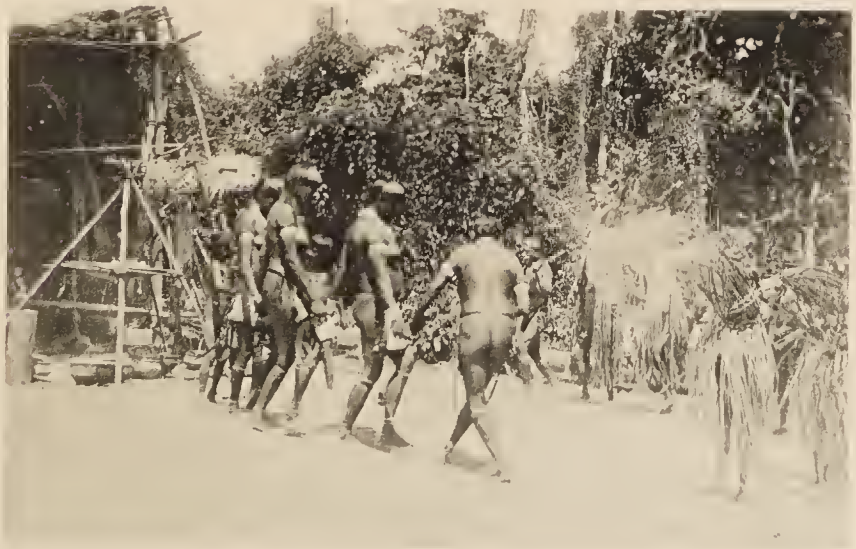
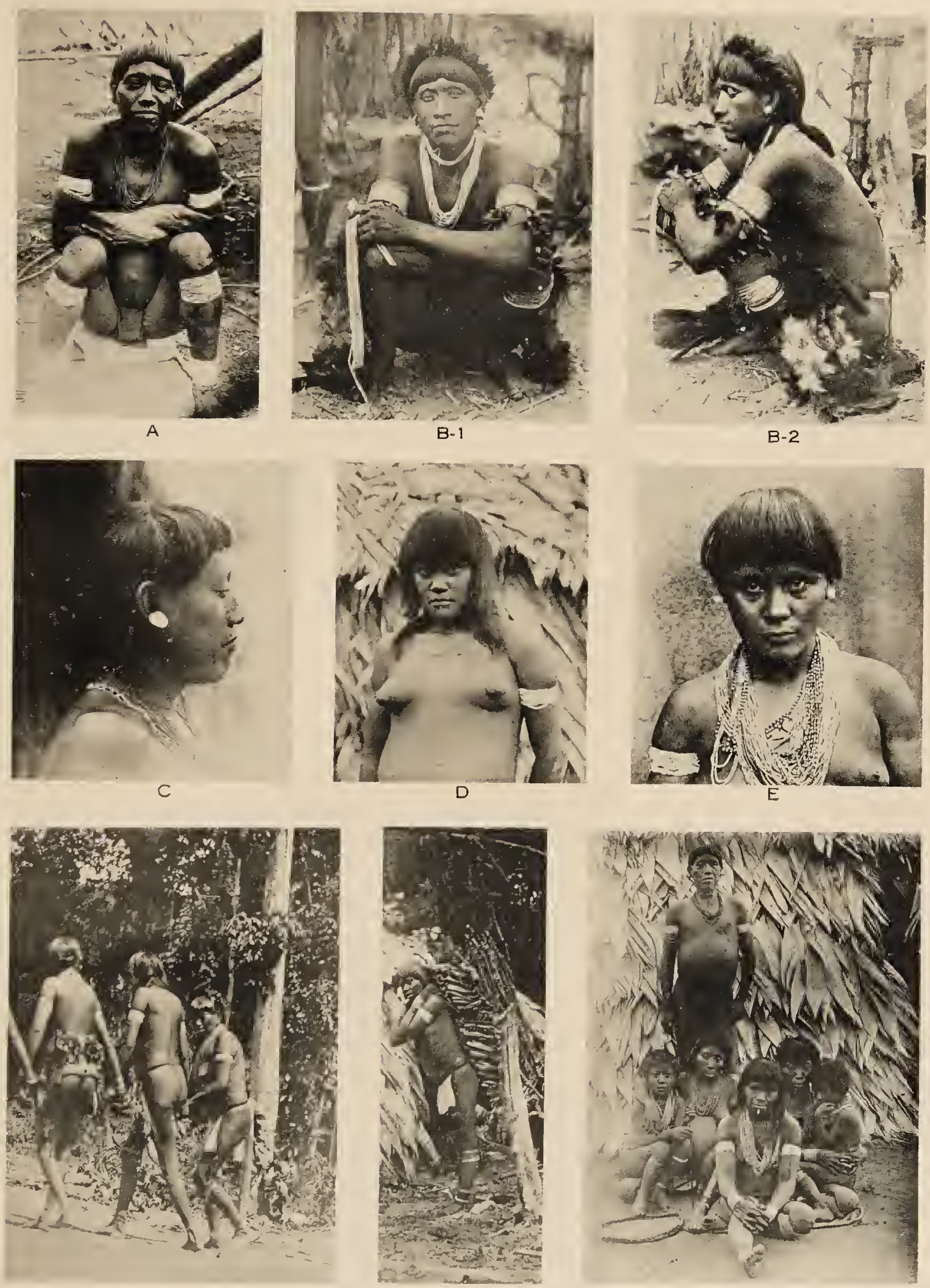


C

A—BREAKING POISON FOR FISH
B—TRAP FOR WILD PIGS
C—DANCE

WAIWAI

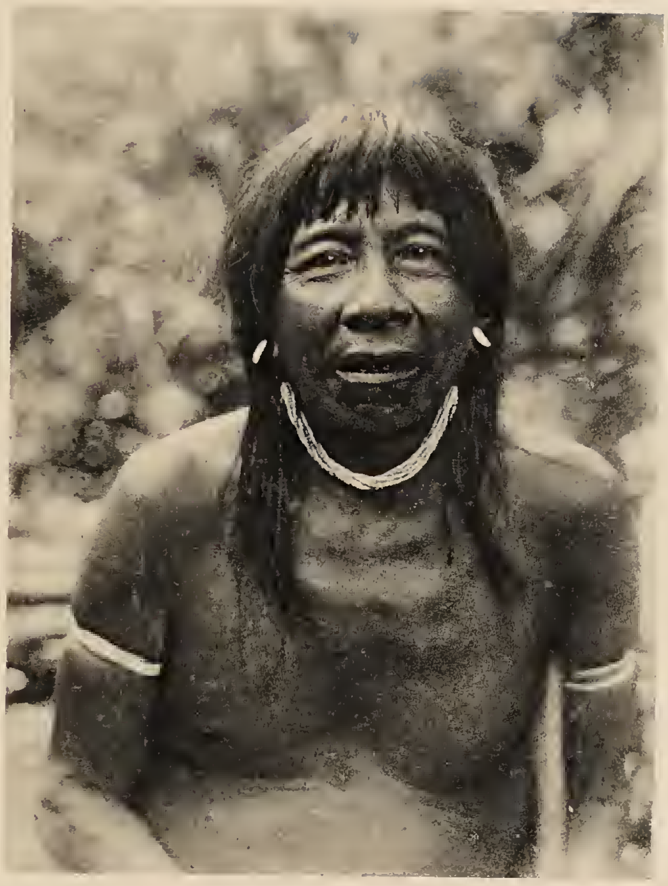


A B-1 B-2

C D E

F G H

WAIWAI



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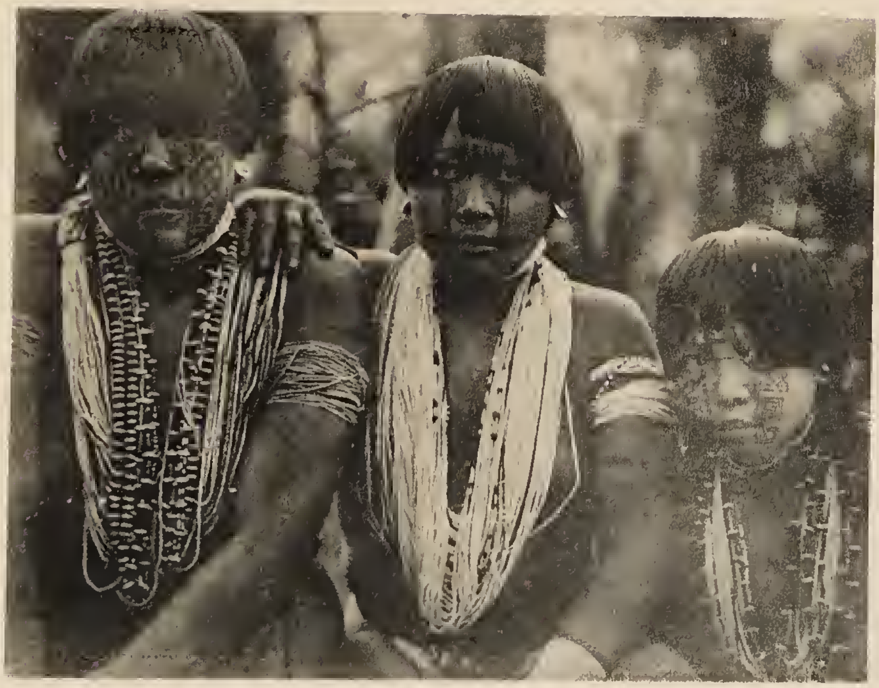
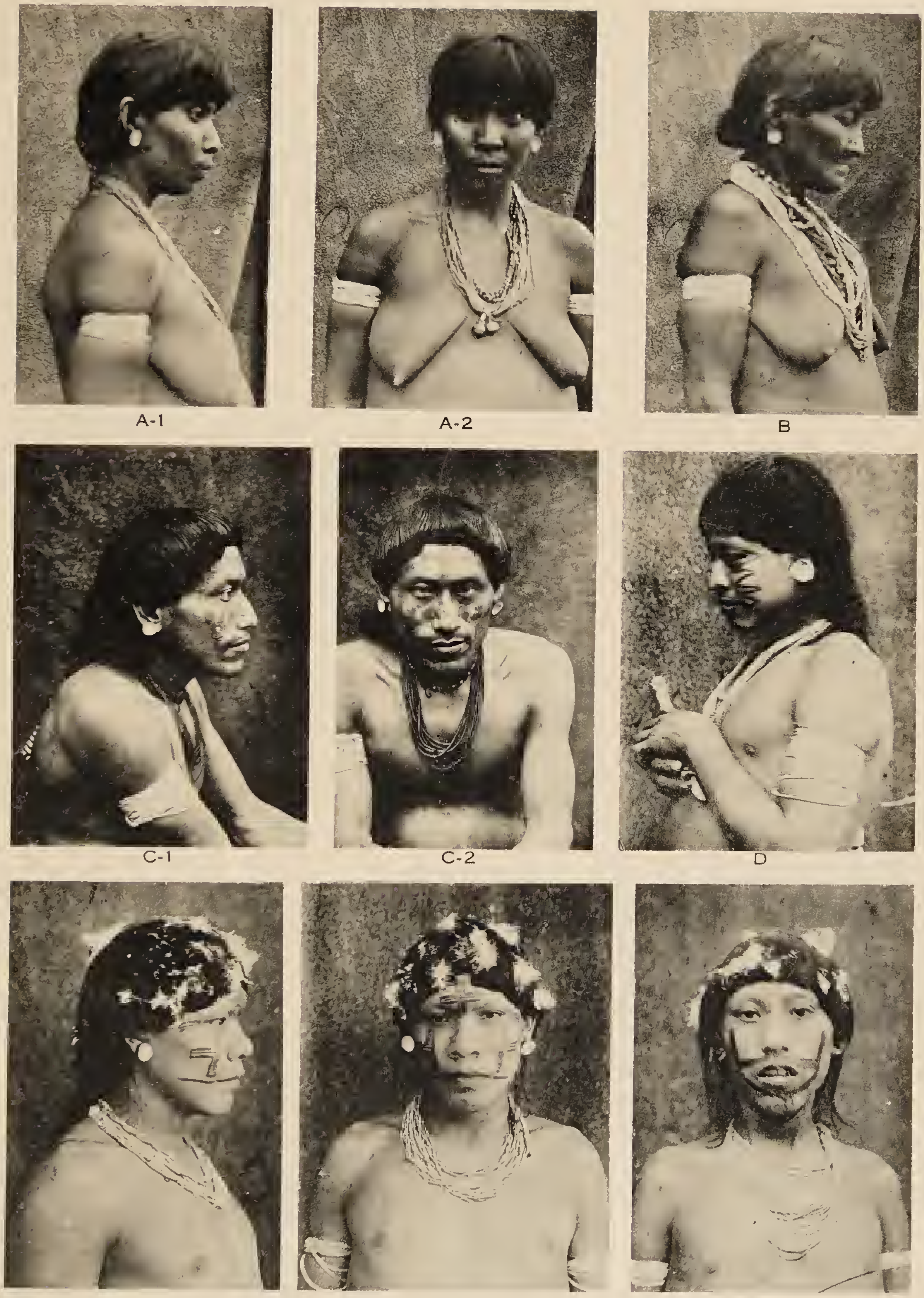


B

A—CHIEF
B—GIRLS

PARUKUTU

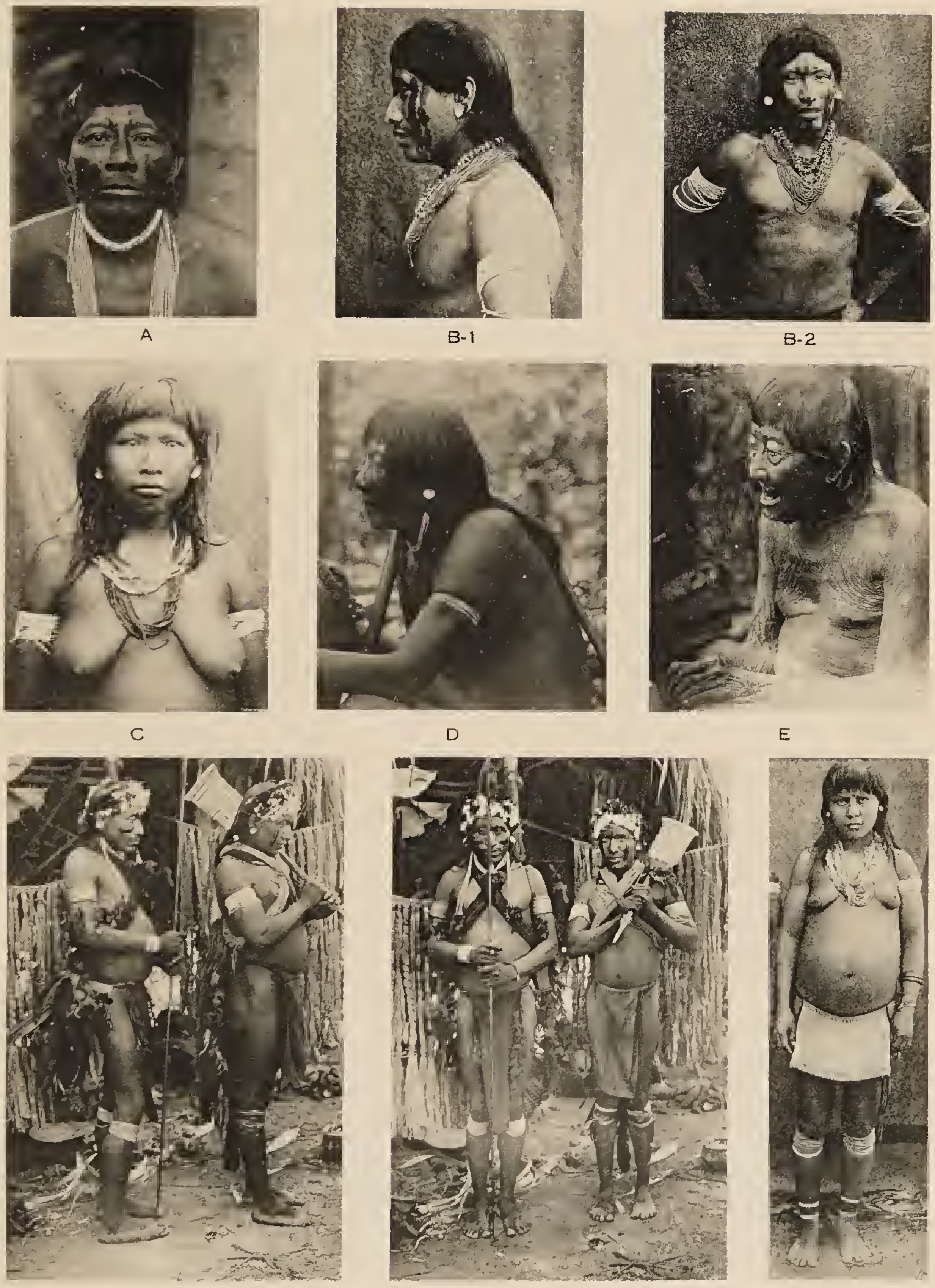


A-1 A-2 B

C-1 C-2 D

E-1 E-2 F

PARUKUTU

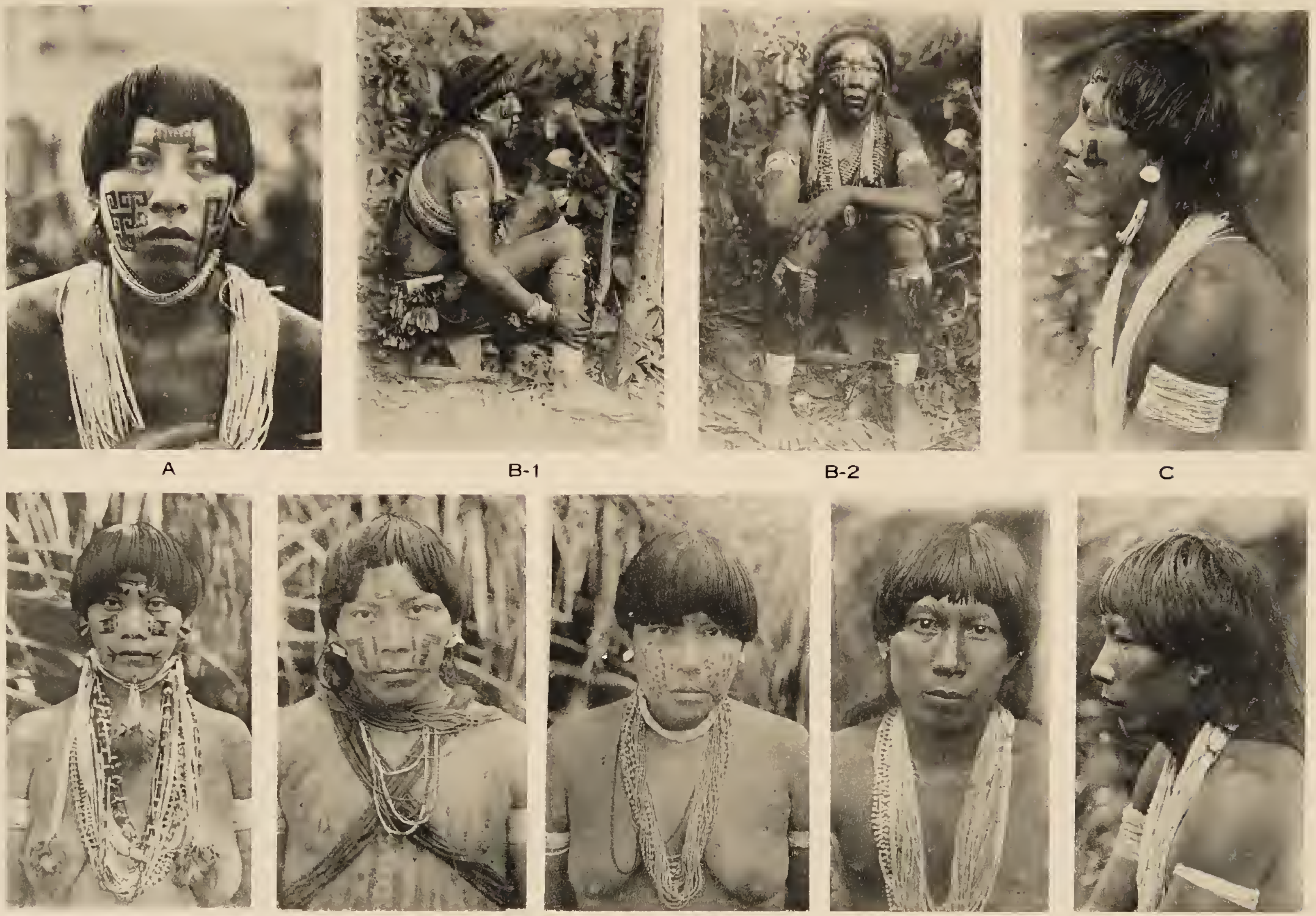


A B-1 B-2

C D E

F G H

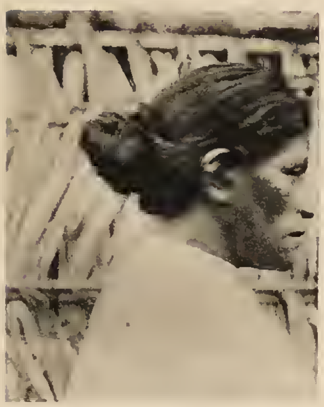
PARUKUTU



A B-1 B-2 C

D E F G-1 G-2

A-B-C WAIWE D-E-F-G DIAU



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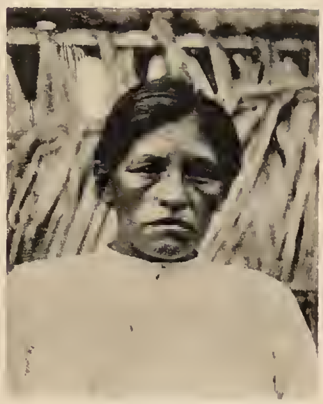

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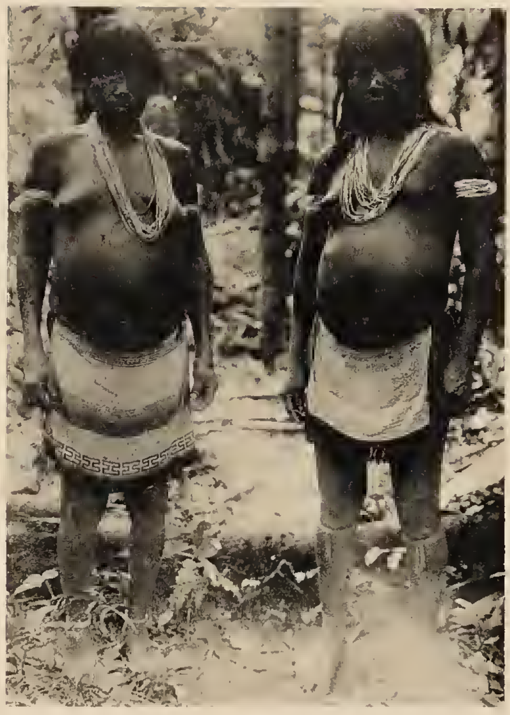

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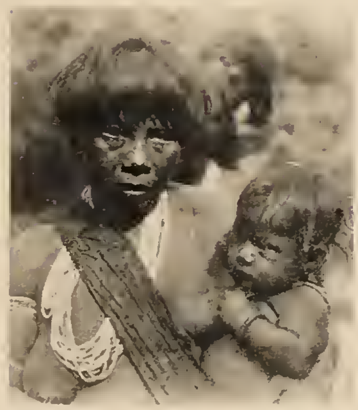

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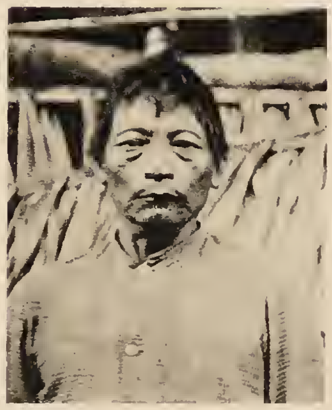

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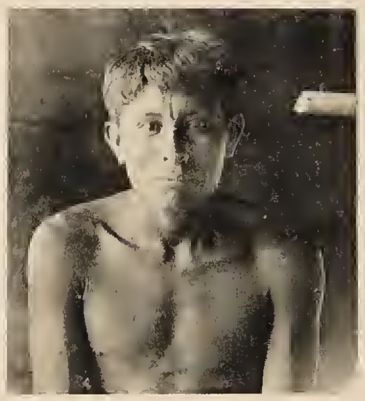

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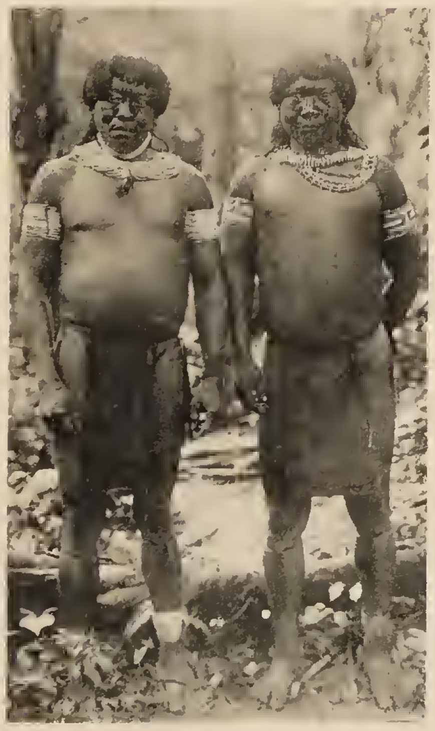

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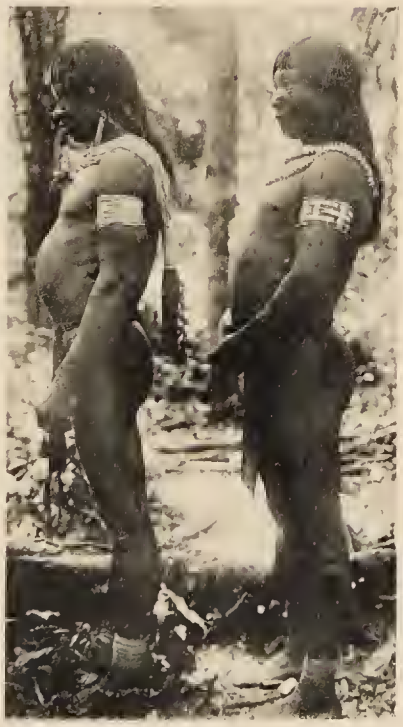

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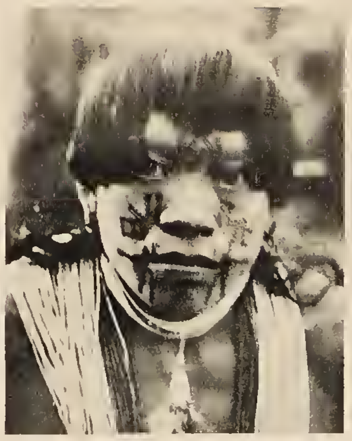
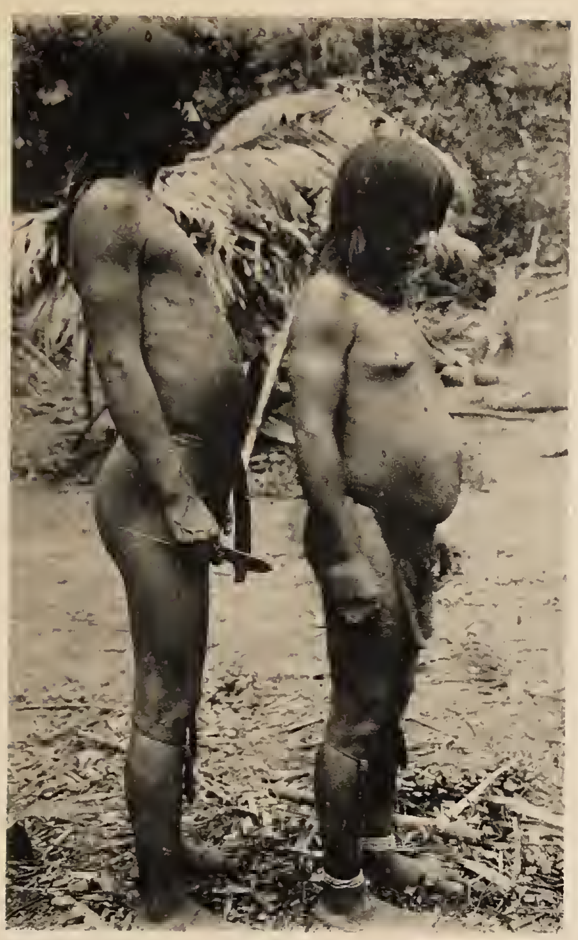
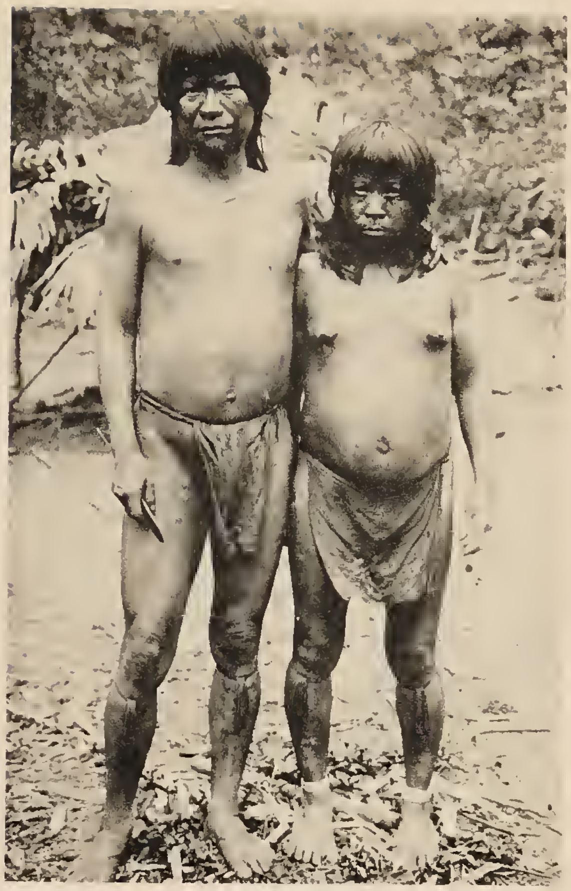


G

A — POROKOTO
B — CHIKENA
C — TONAYENA
D — AZUMARA
E — ZAPARA
F — CHIKENA (L) KATAWIAN (R)
G — TONAYENA



A-1



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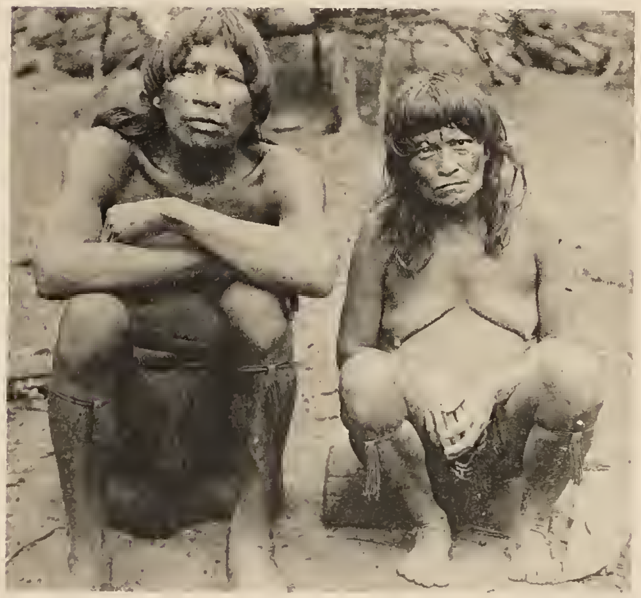

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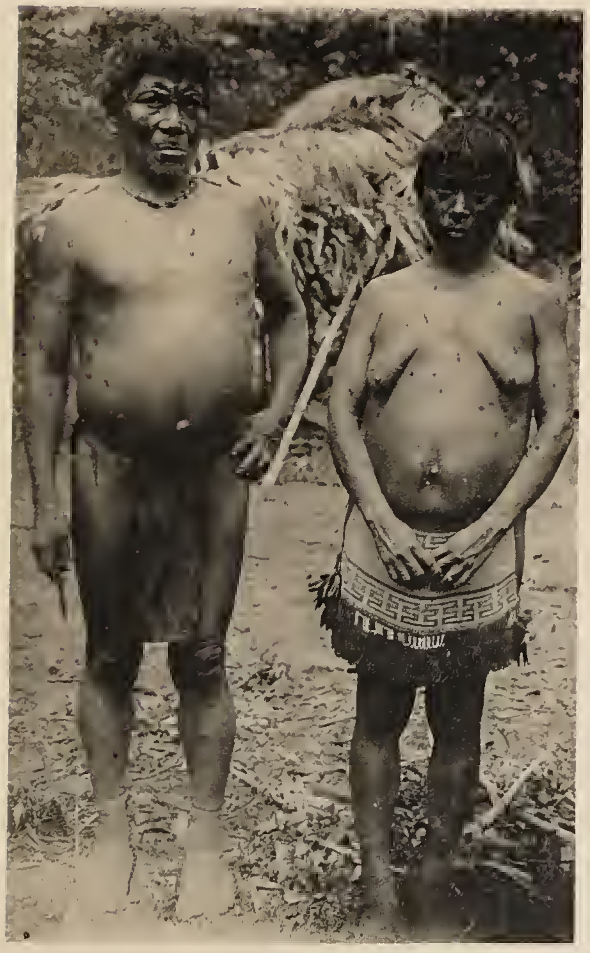

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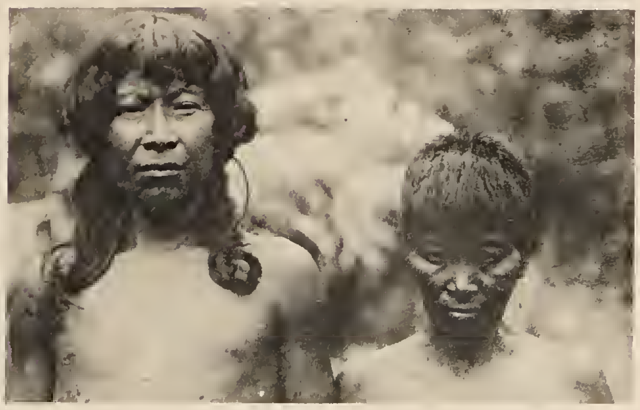
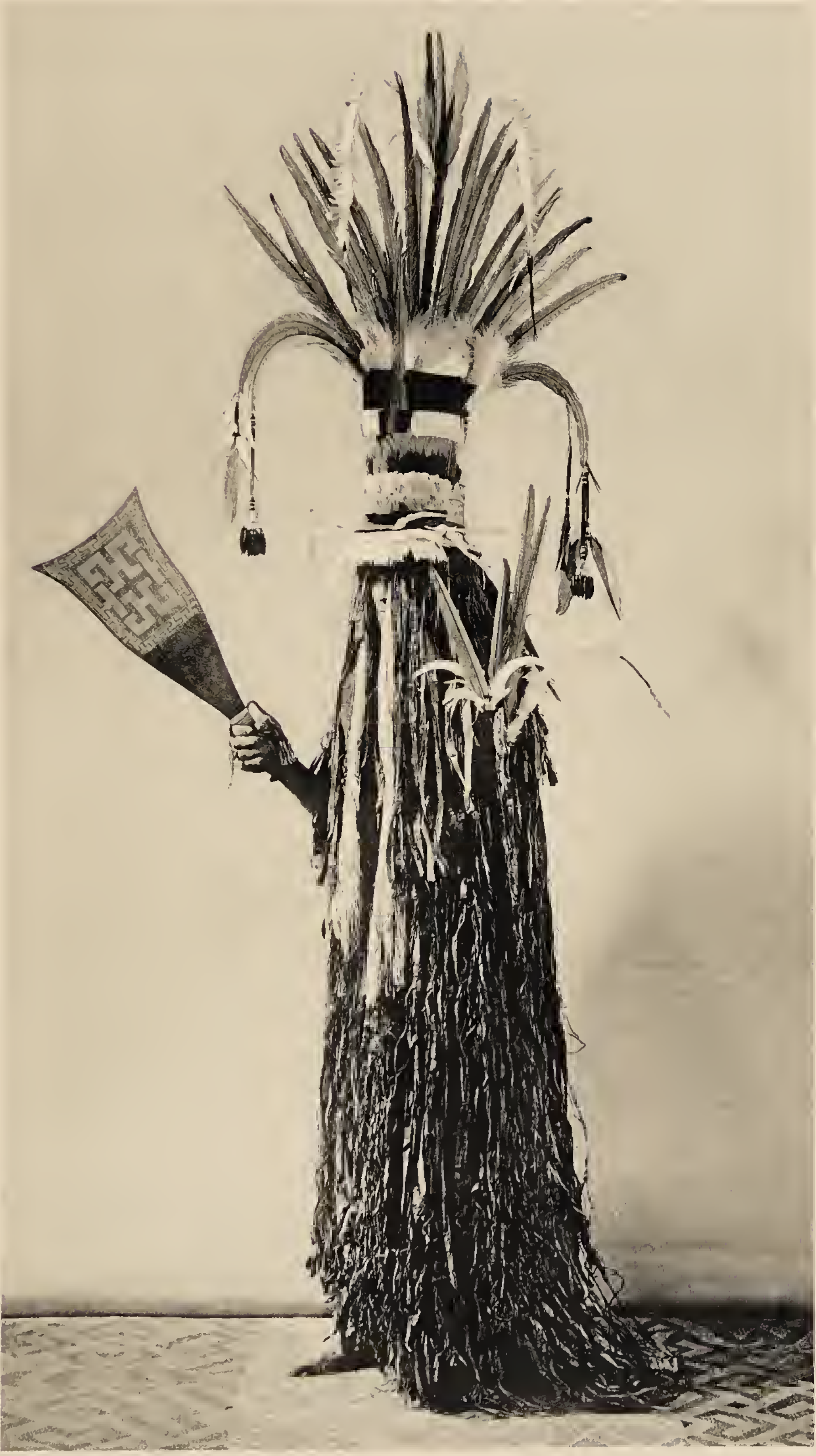
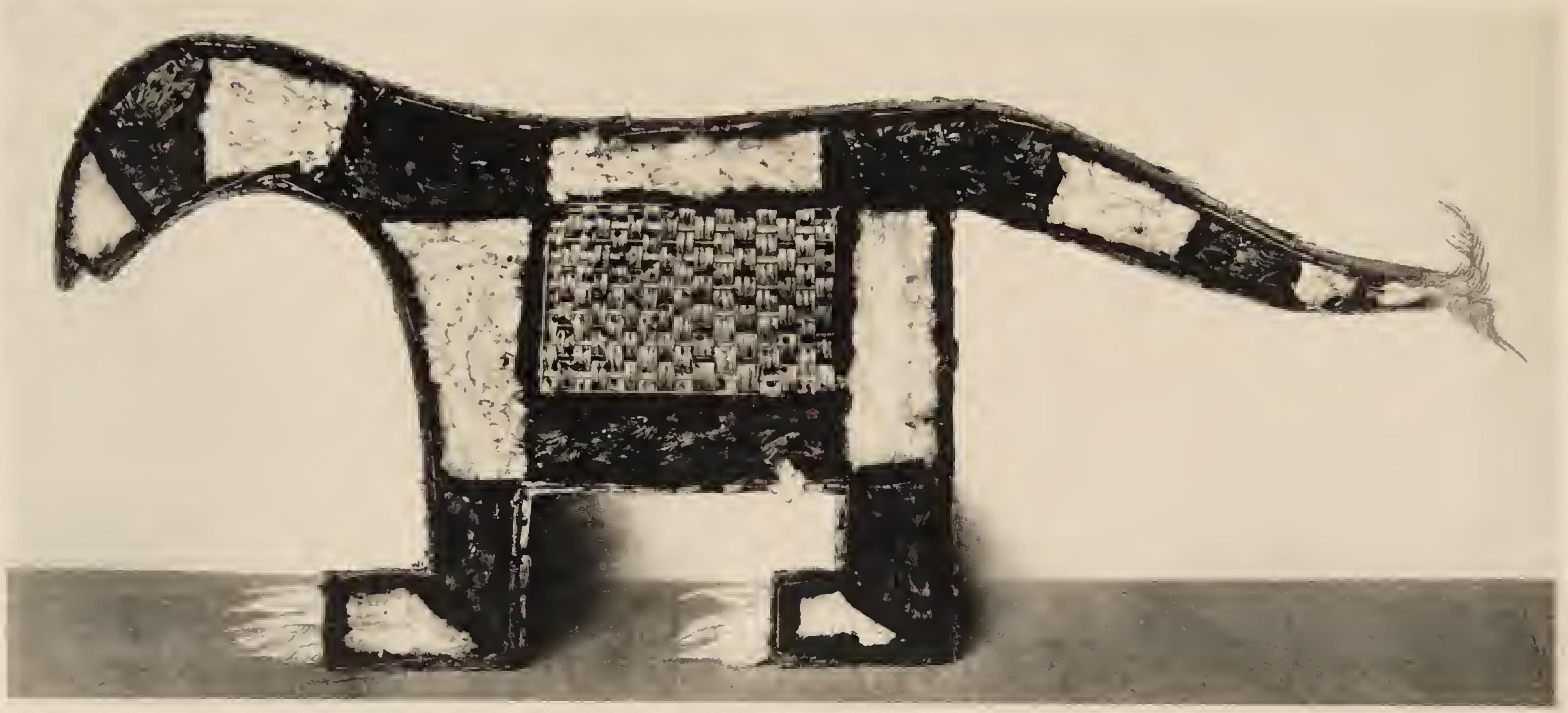


B

A-C—KUMAYENA
B-D—URUKUENA

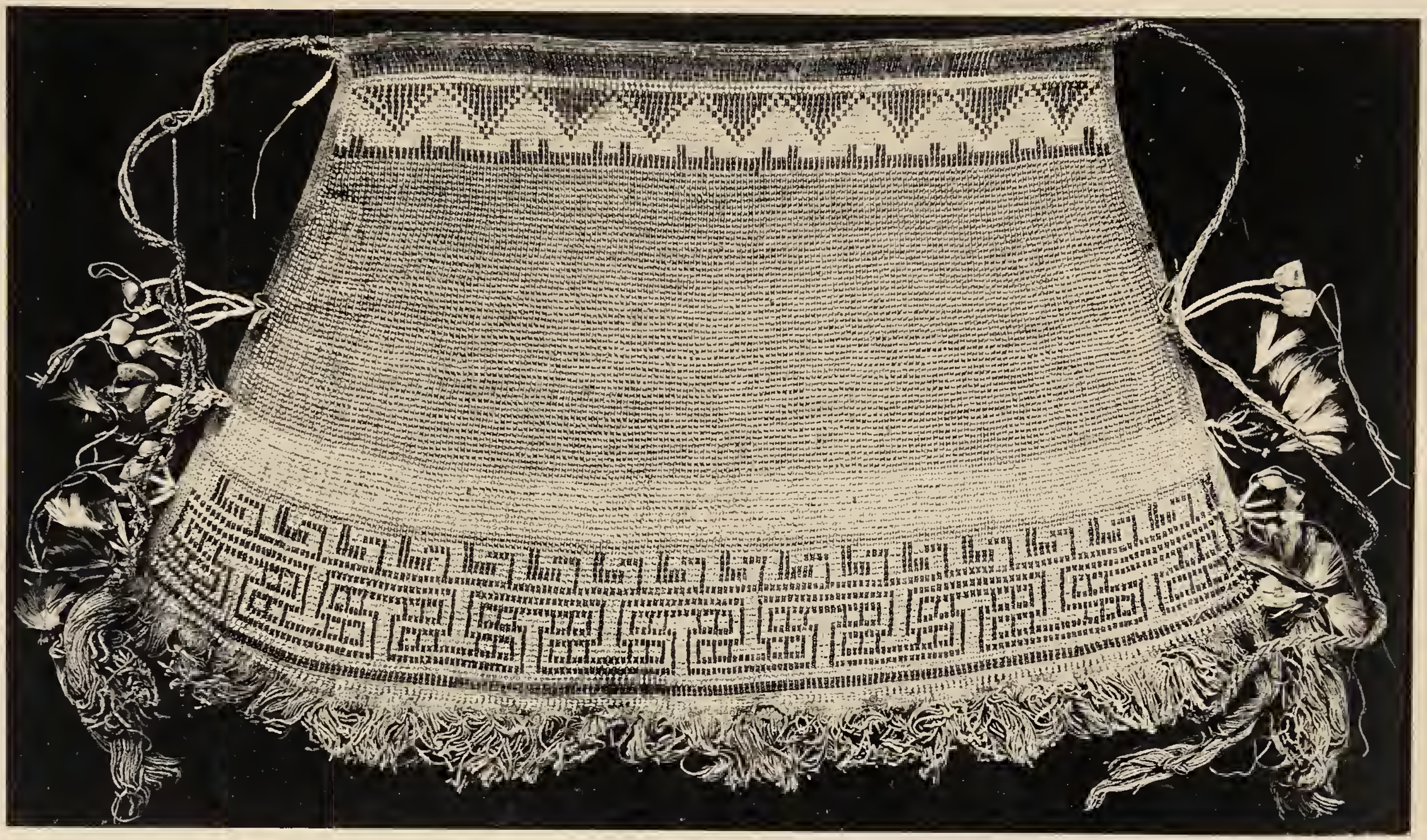


WAR CHIEF'S CEREMONIAL DRESS
APALAII



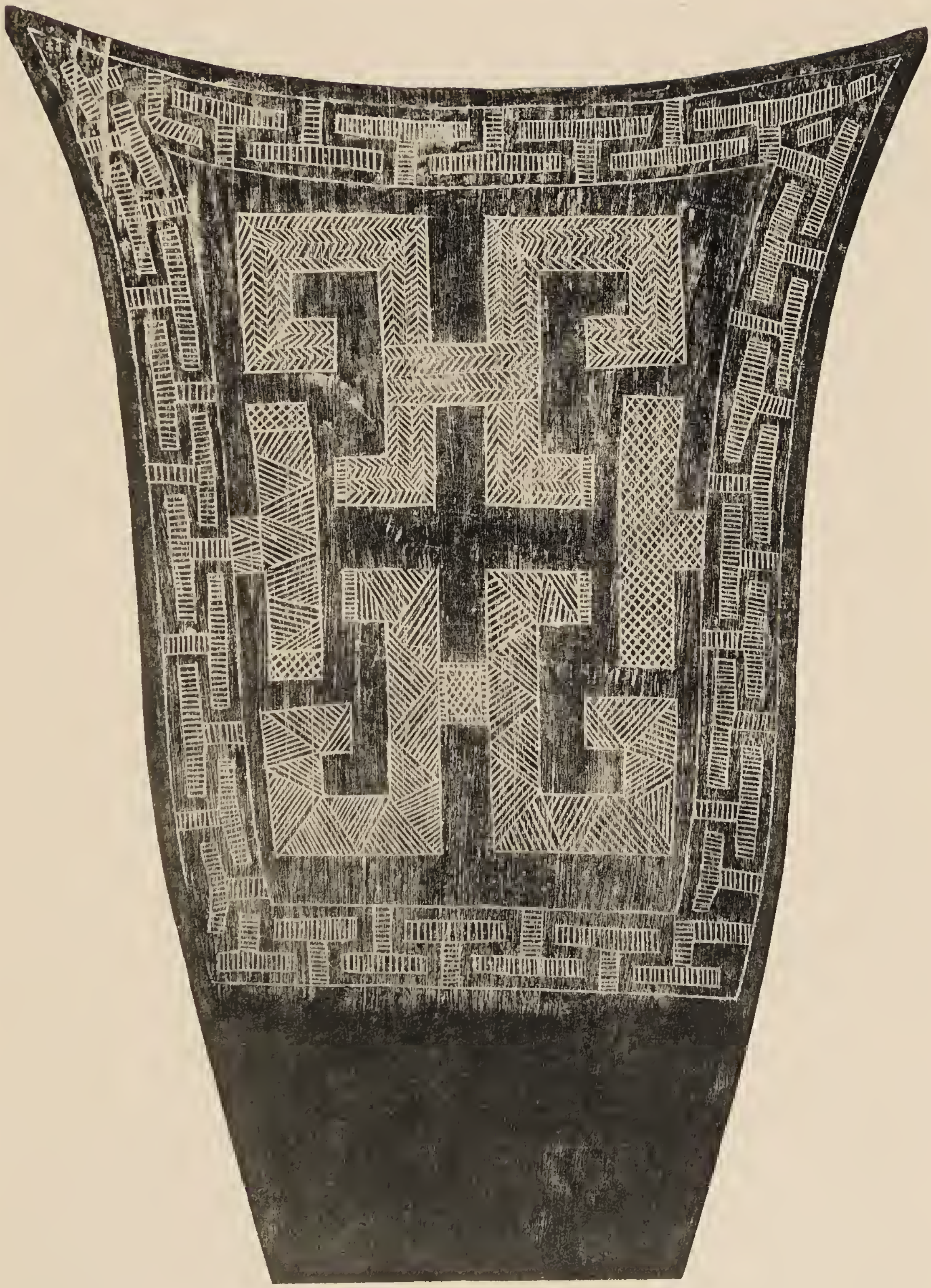
WASP FRAME IN FORM OF A JAGUAR

APALAII



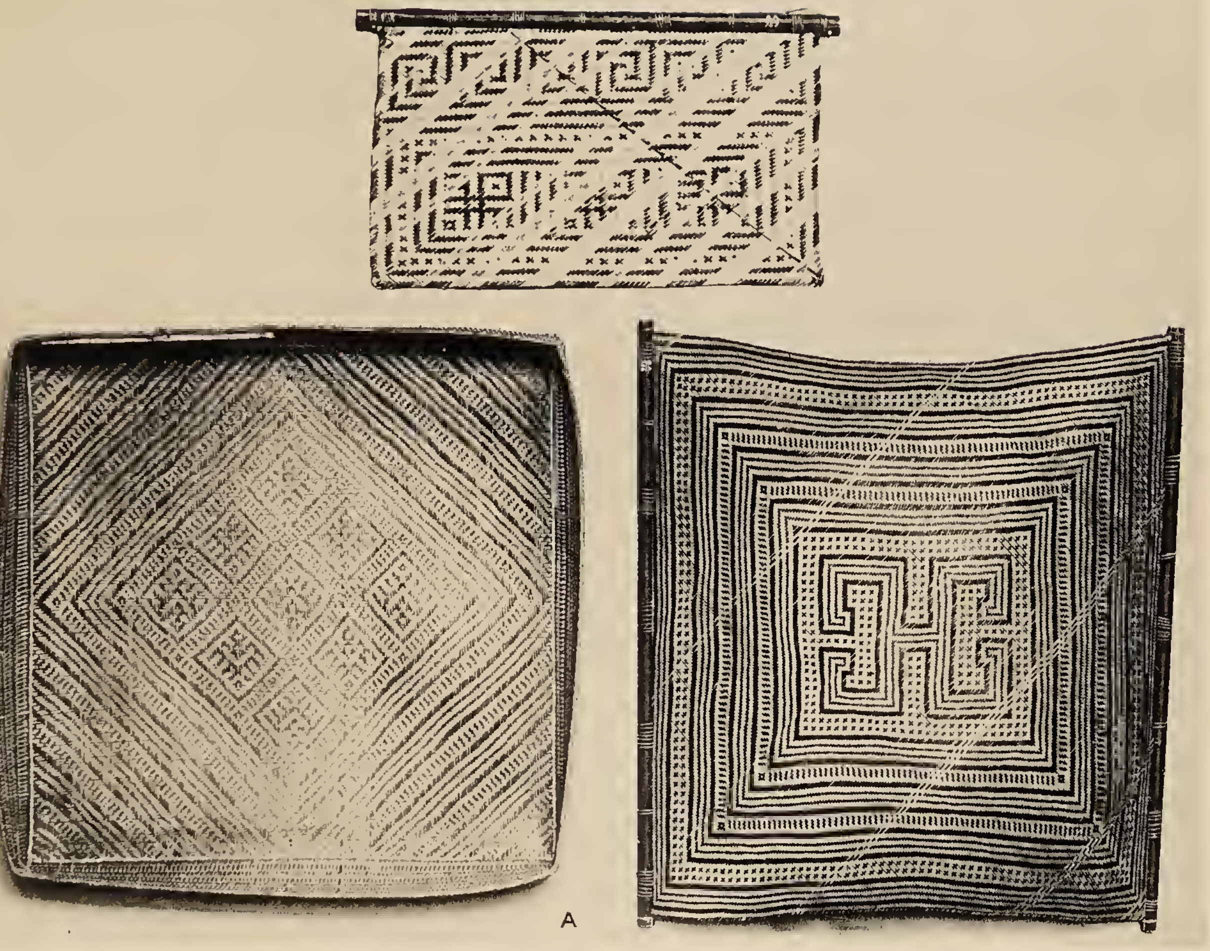
APRON

APALAII



CEREMONIAL CLUB WITH FIGURES REPRESENTING
MYTHICAL FOREST MONSTERS

APALAII



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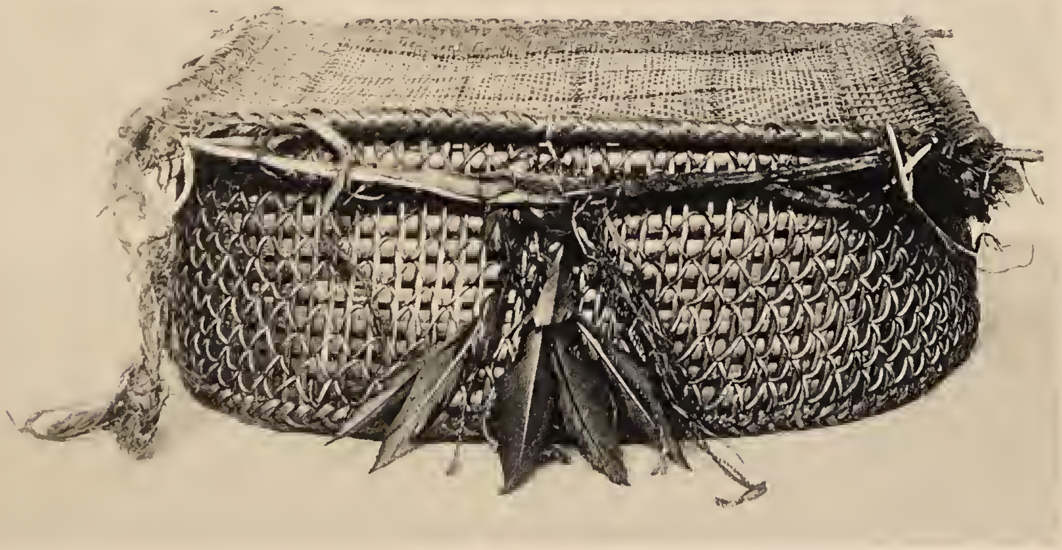
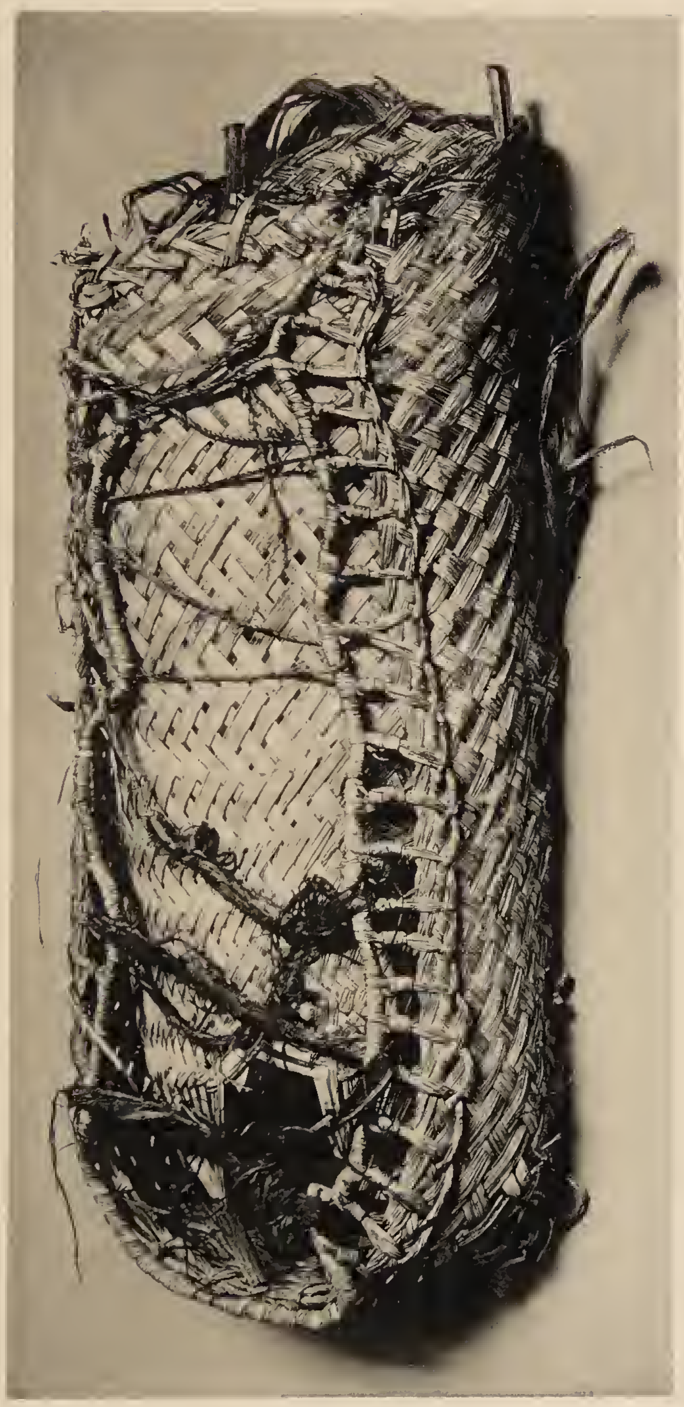
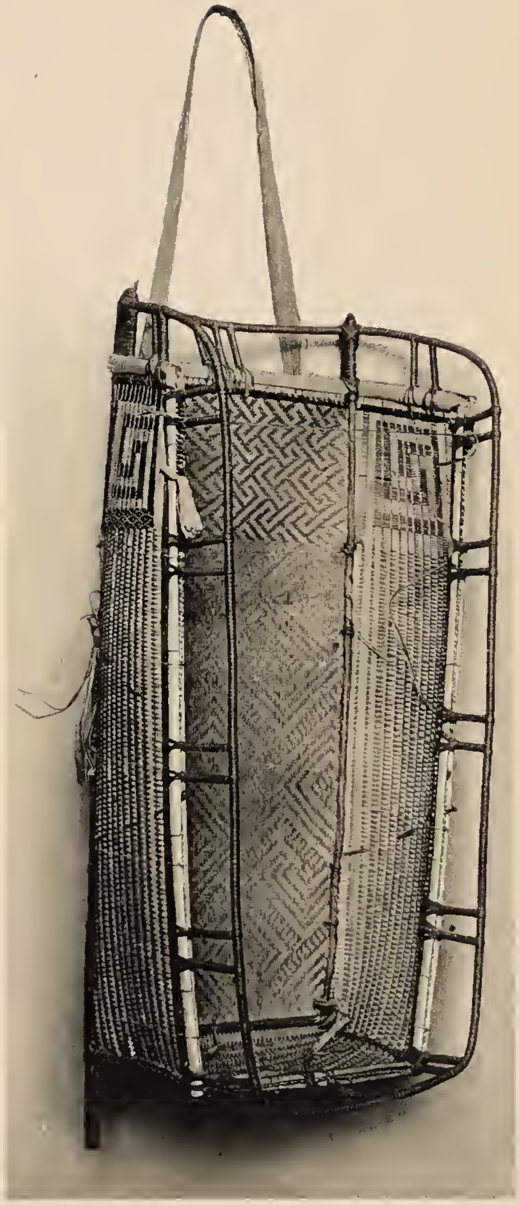


B

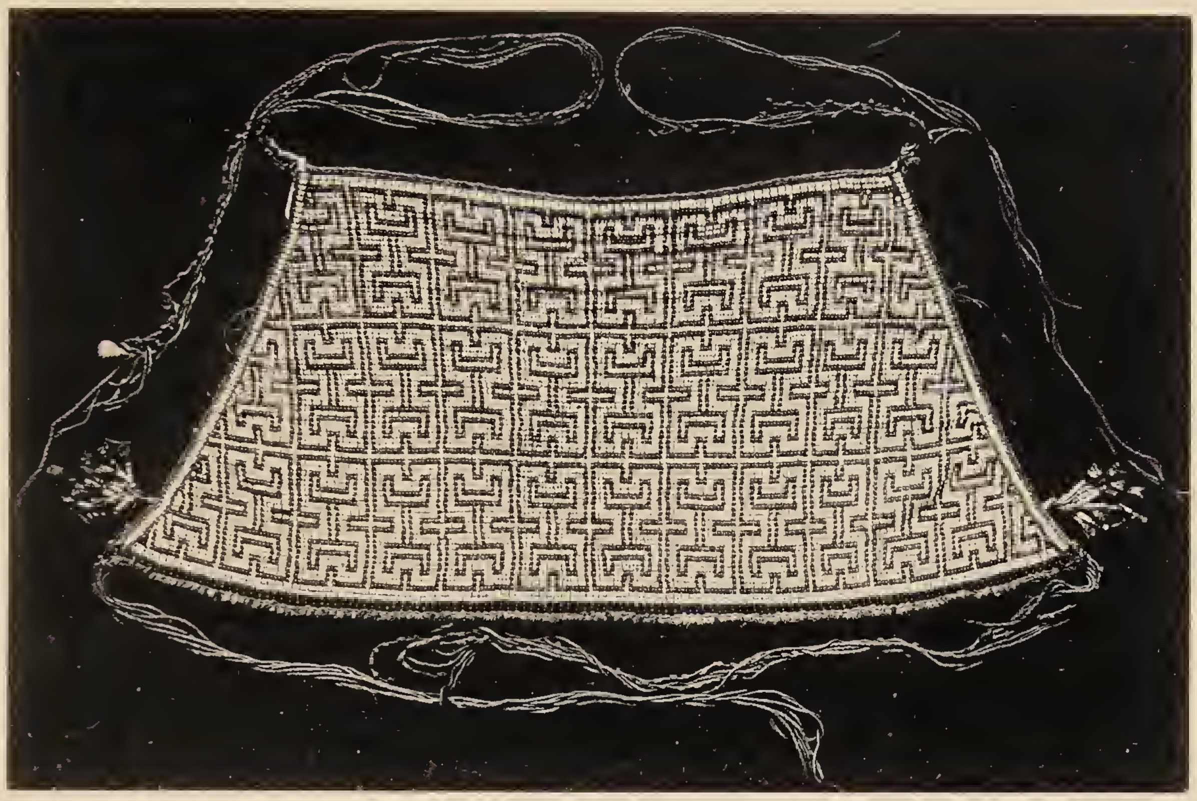
A—APALAII TRAYS
B—WAIWAI SIEVE



CARRYING BASKET
MACUSI



CARRYING BASKET
APALAII



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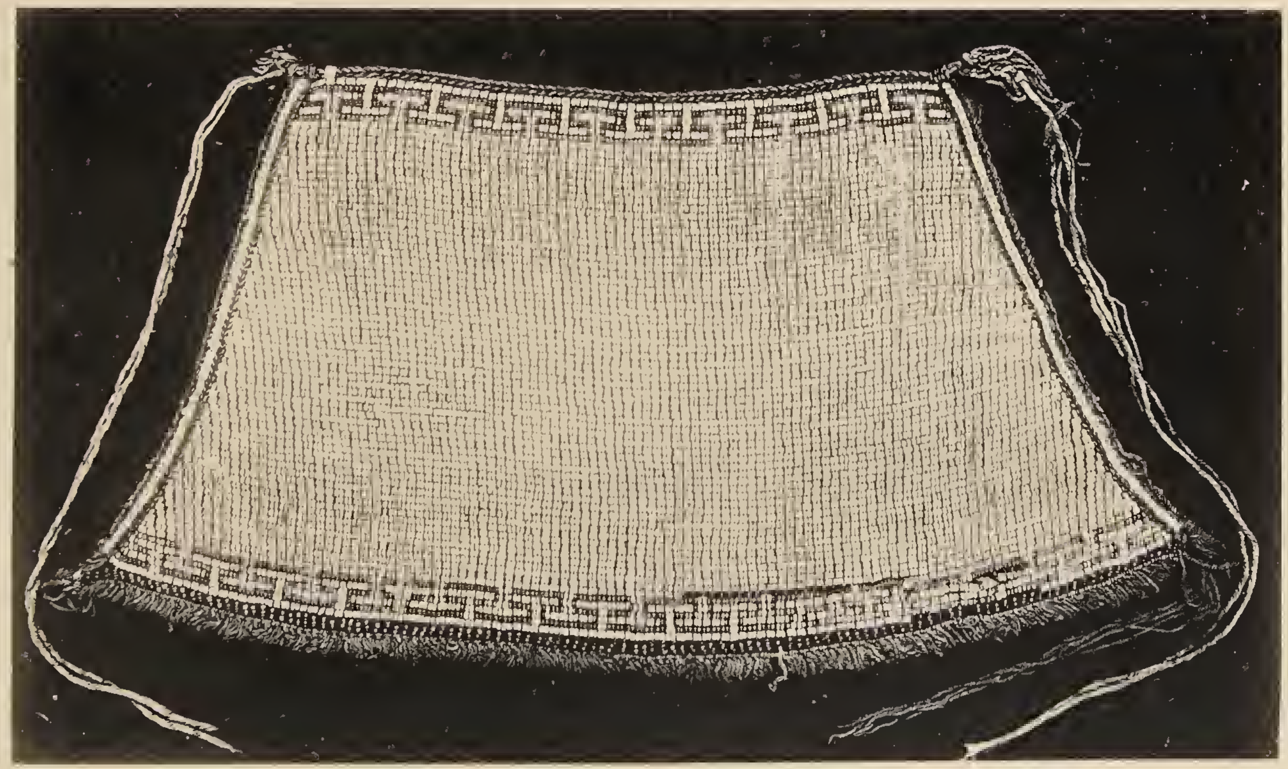
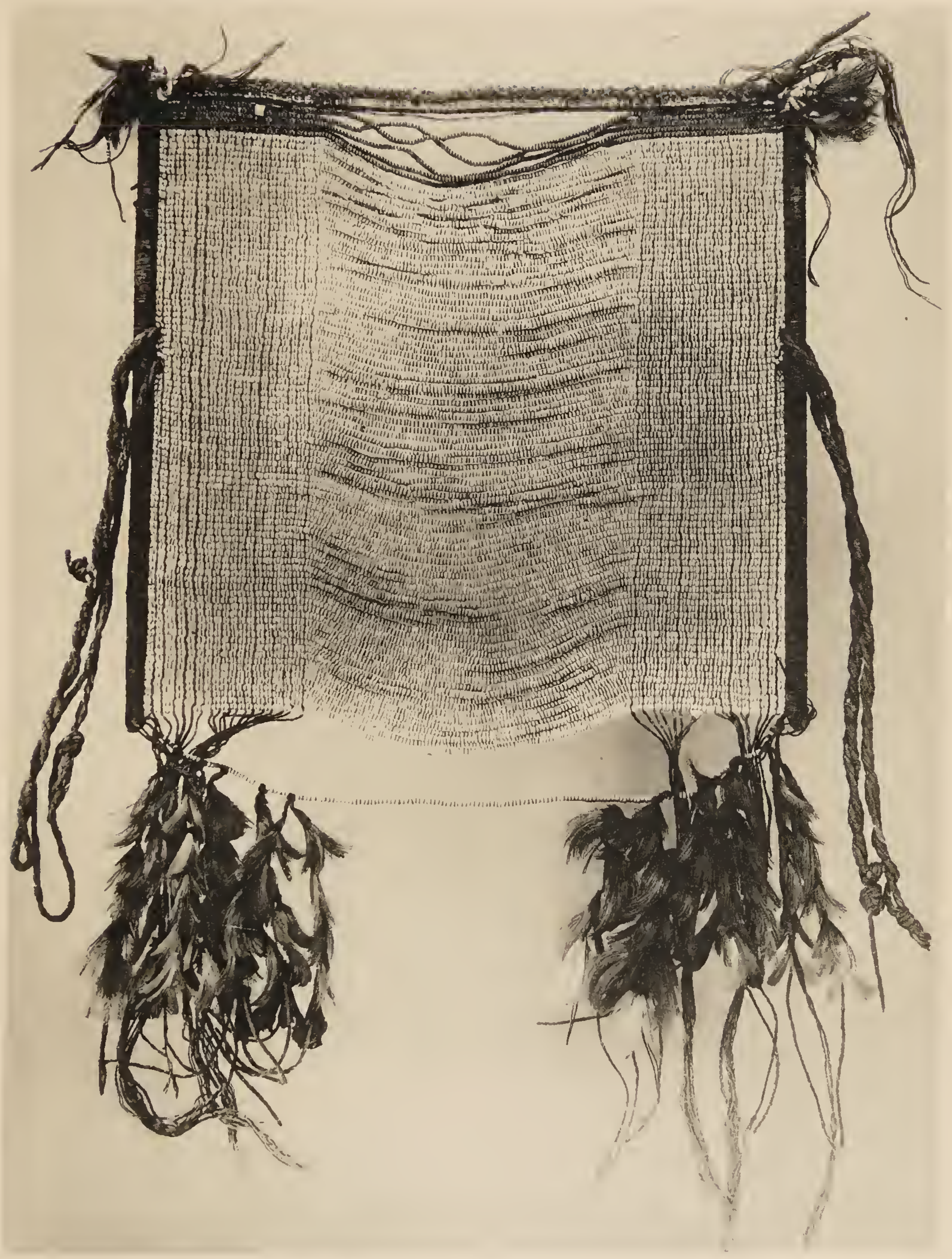


B

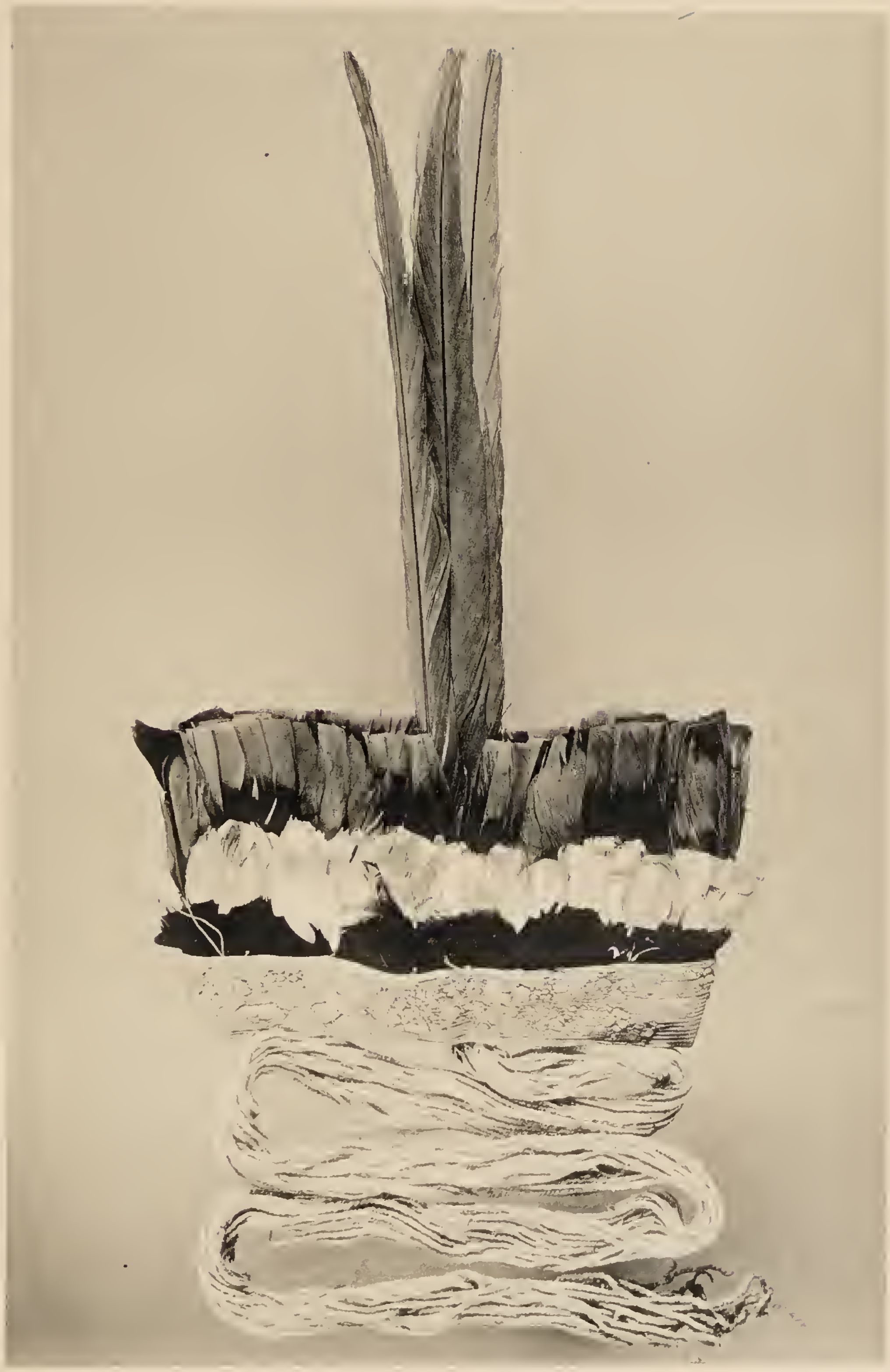
BEADED APRONS

MACUSI



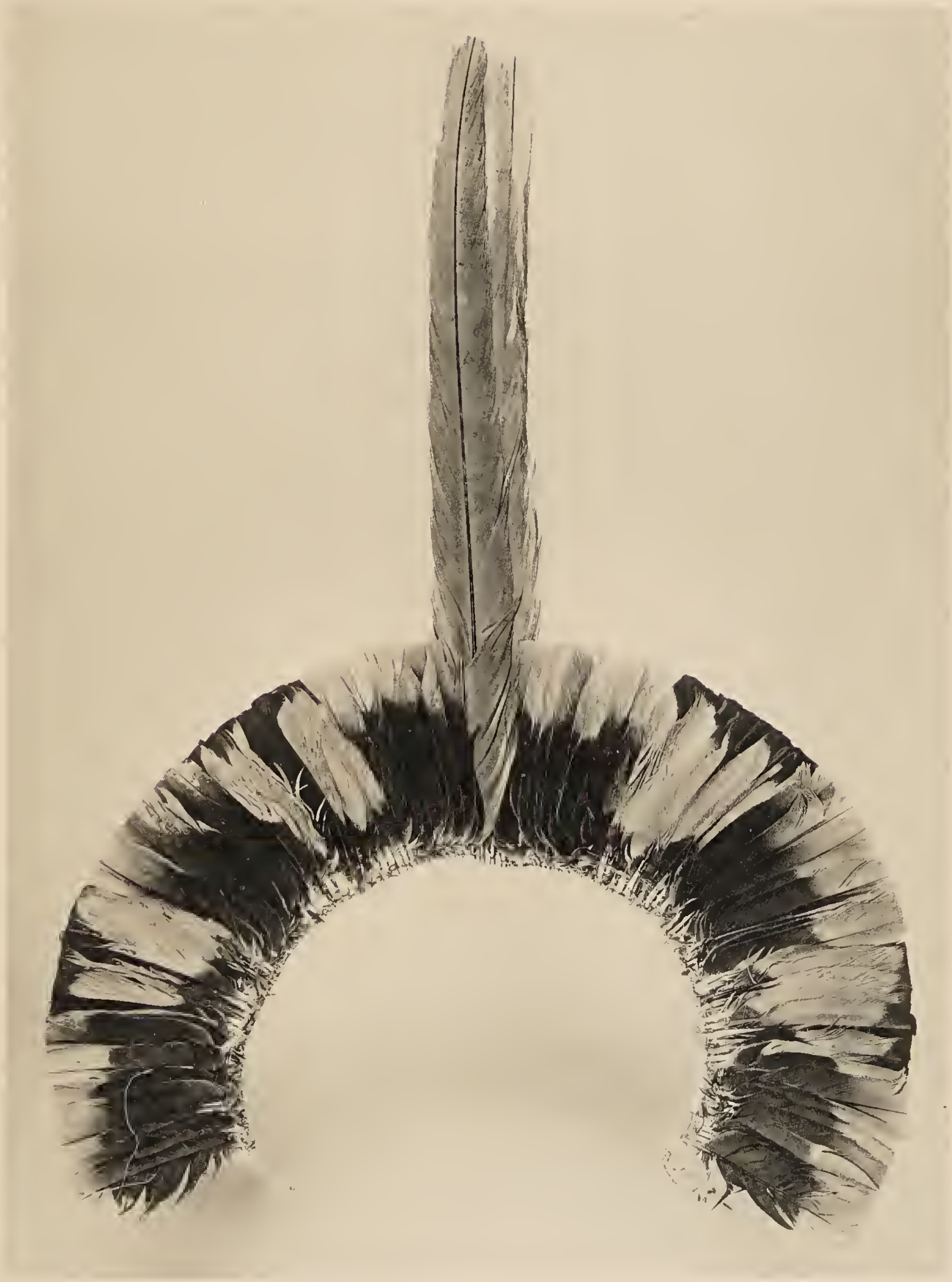
WOMAN'S LOIN APRON

WAIWAI



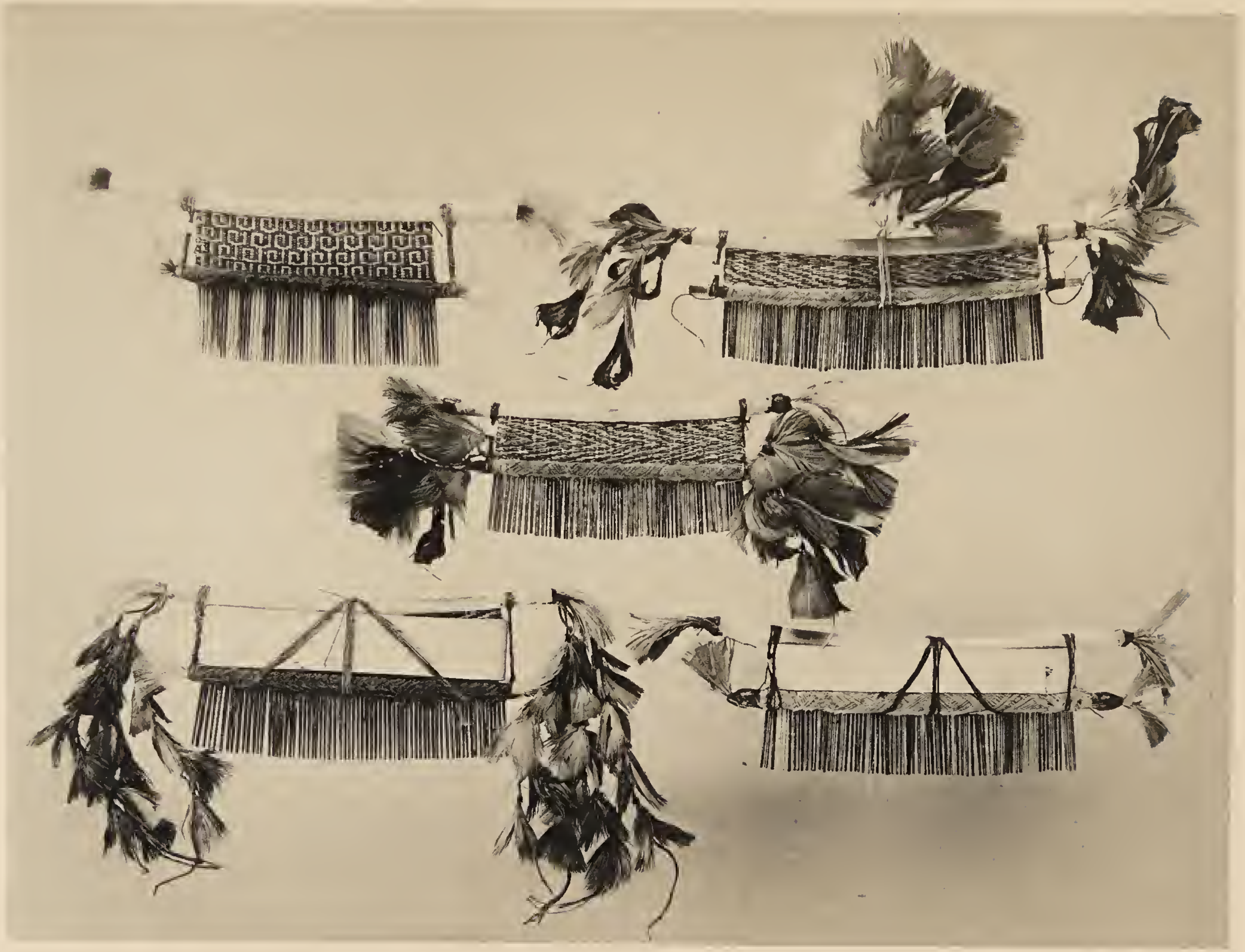
HEADDRESS

WAIWAI



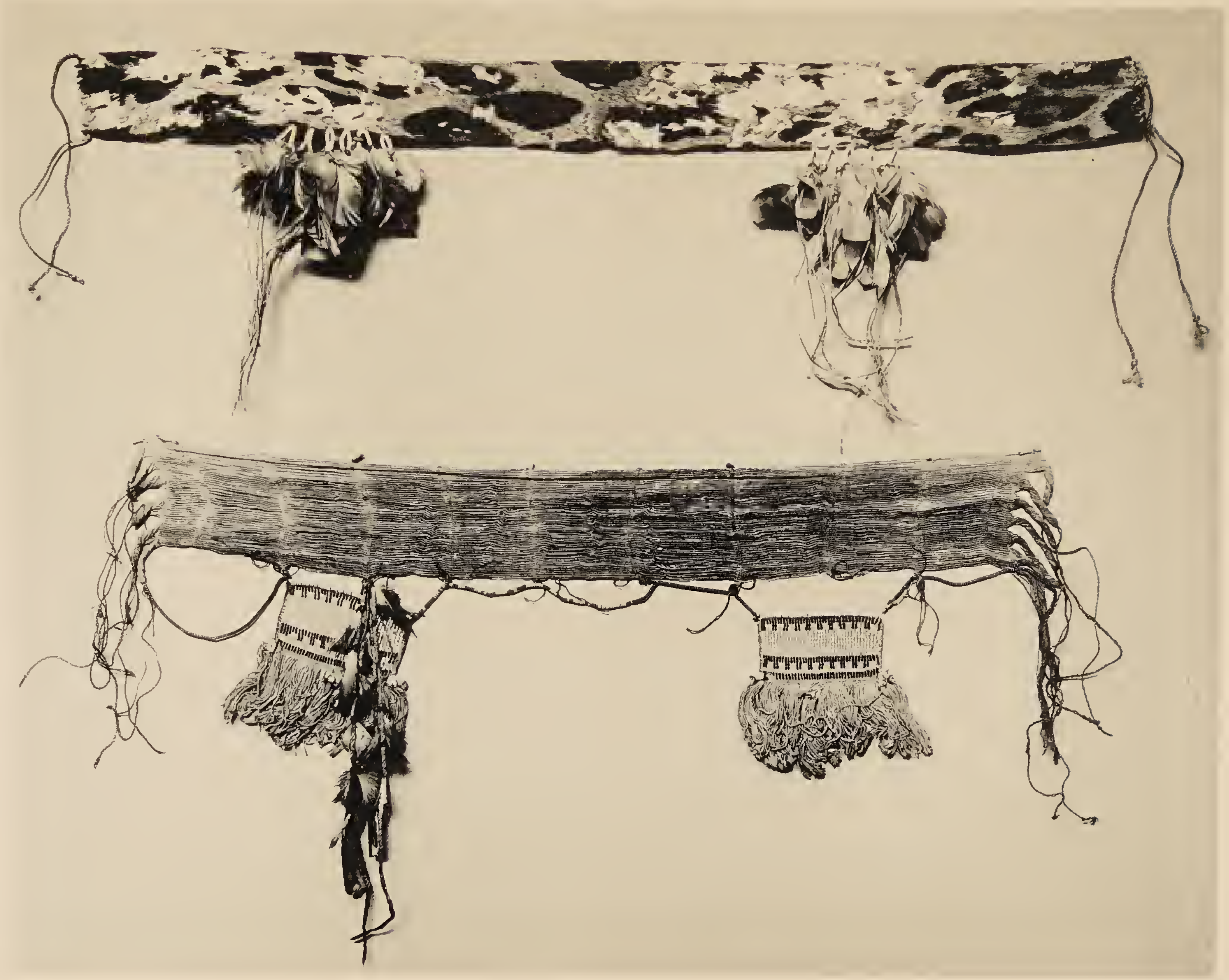
HEADDRESS

WAIWAI



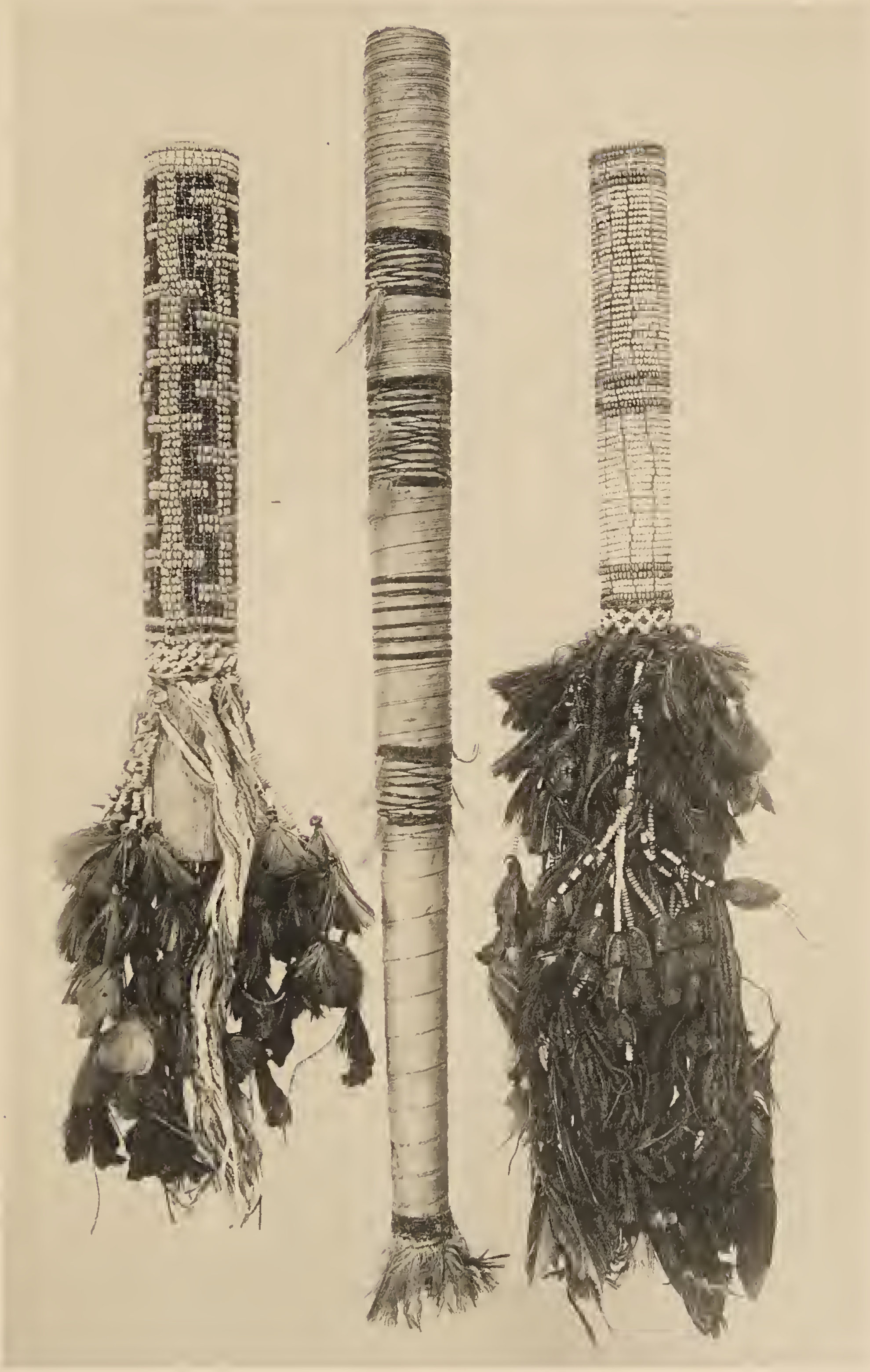
COMBS

WAIWAI



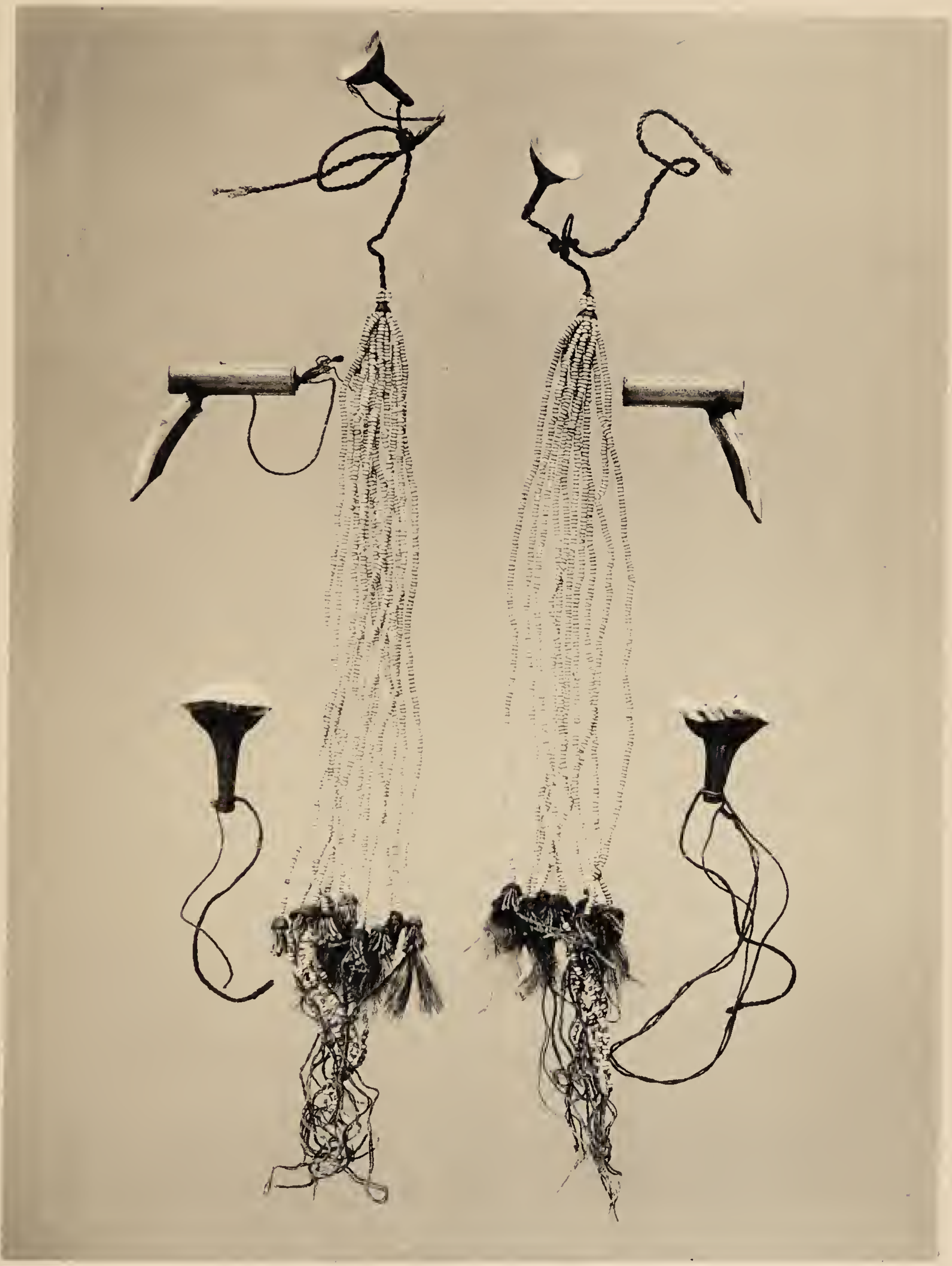
MEN'S BELTS

WAIWAI



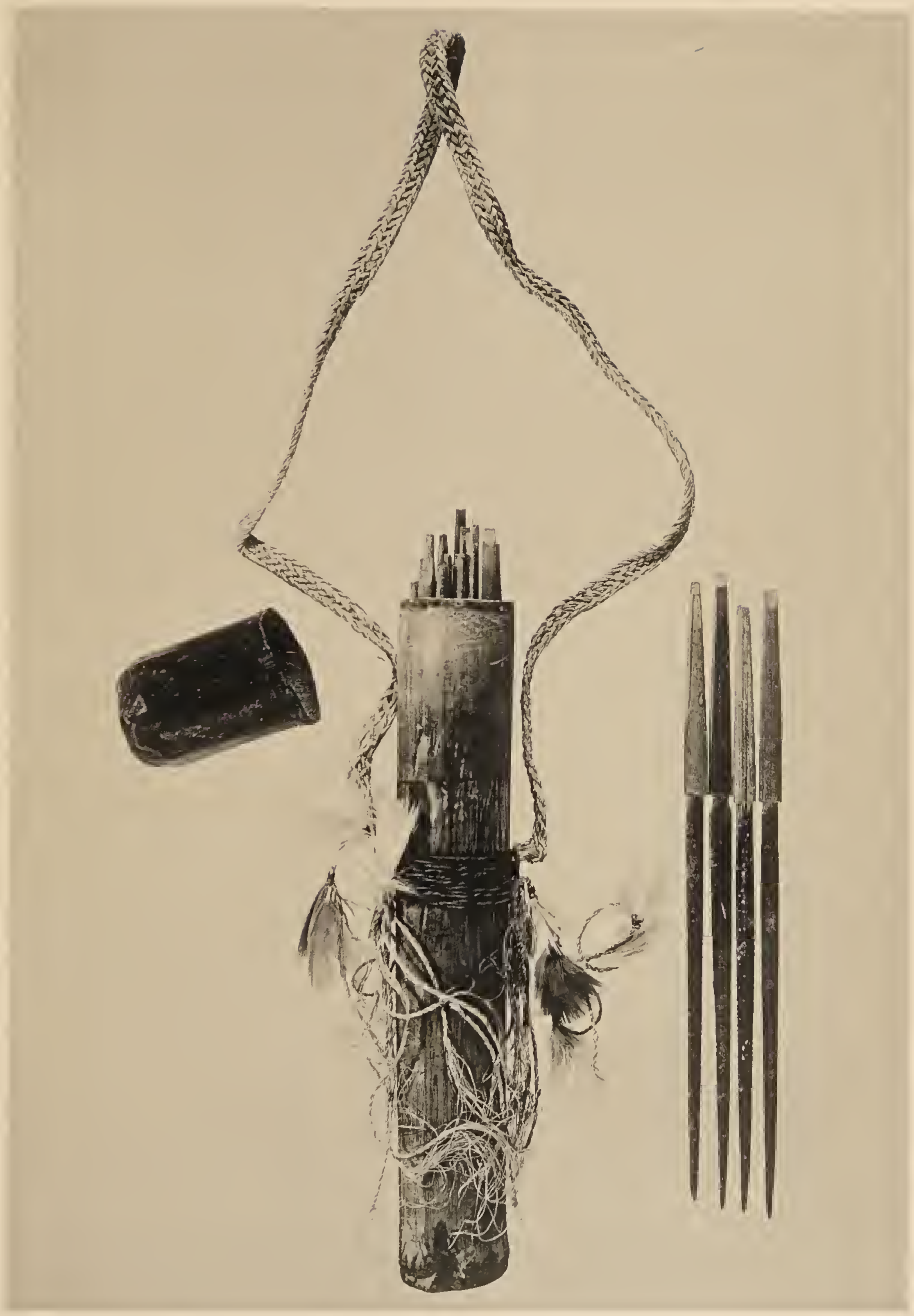
HAIR TUBES

WAIWAI



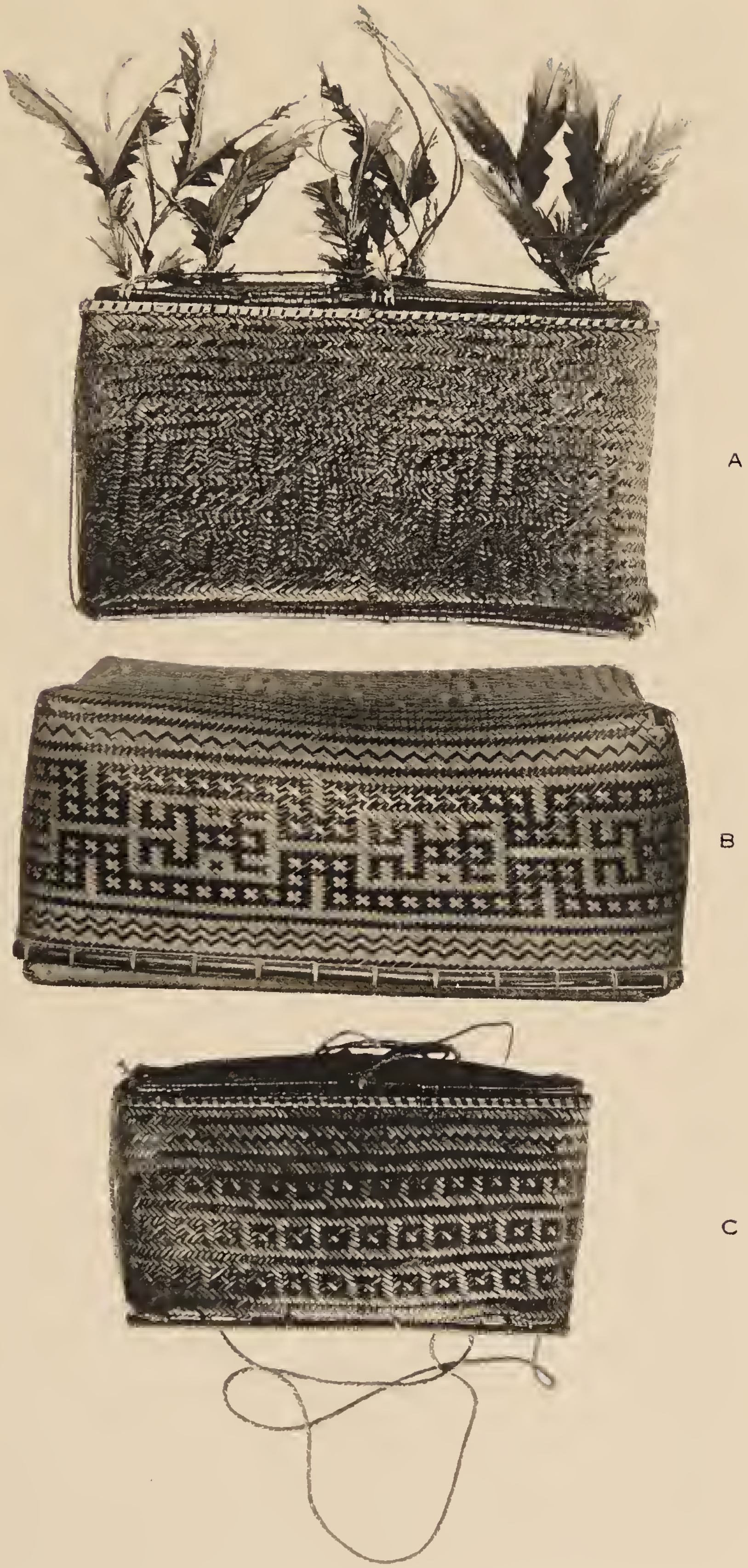
EAR ORNAMENTS

WAIWAI



CASE FOR POISONED ARROW POINTS

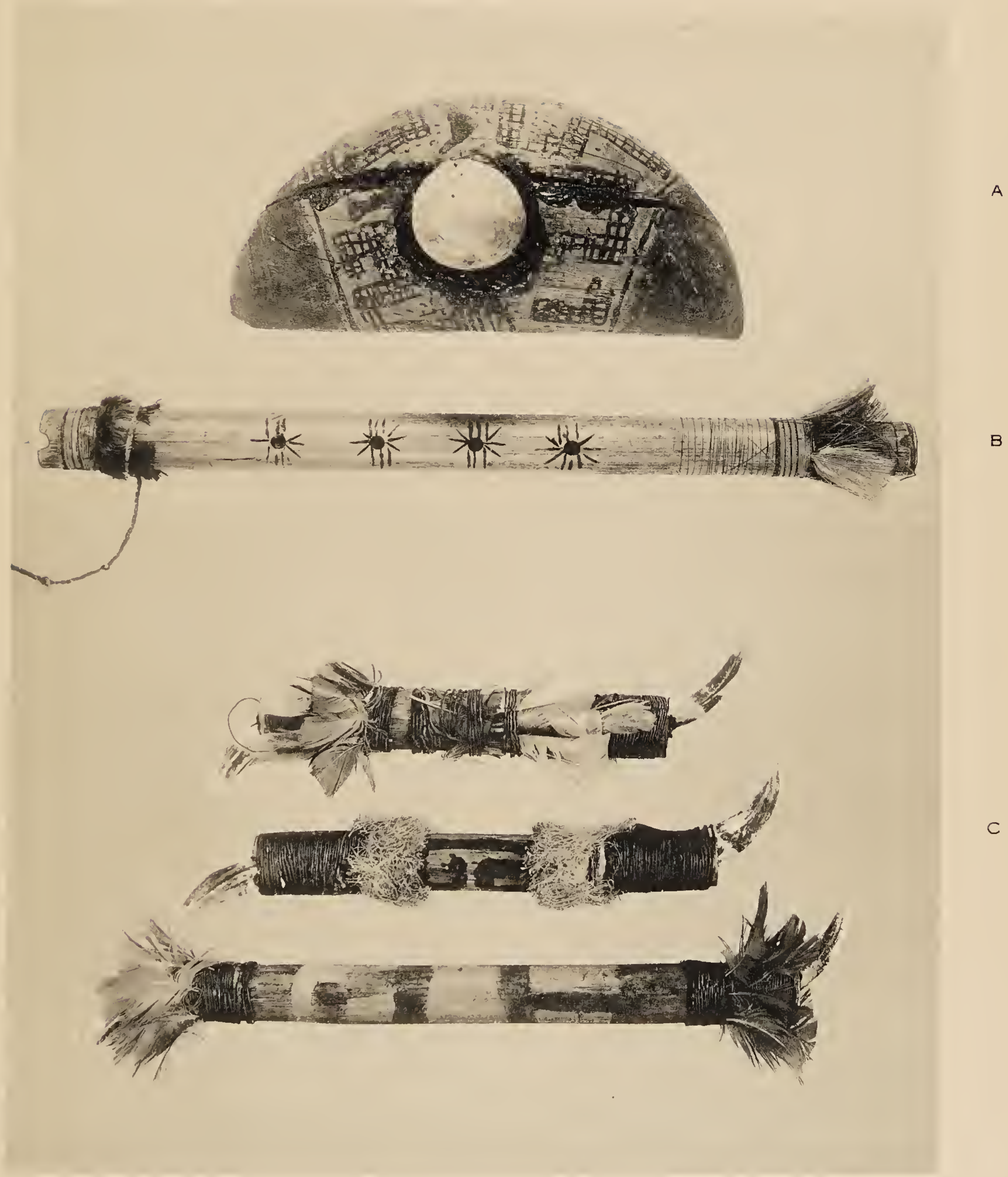
WAIWAI



A-C—TRINKET BASKETS
B—STORAGE BASKETS

WAIWAI

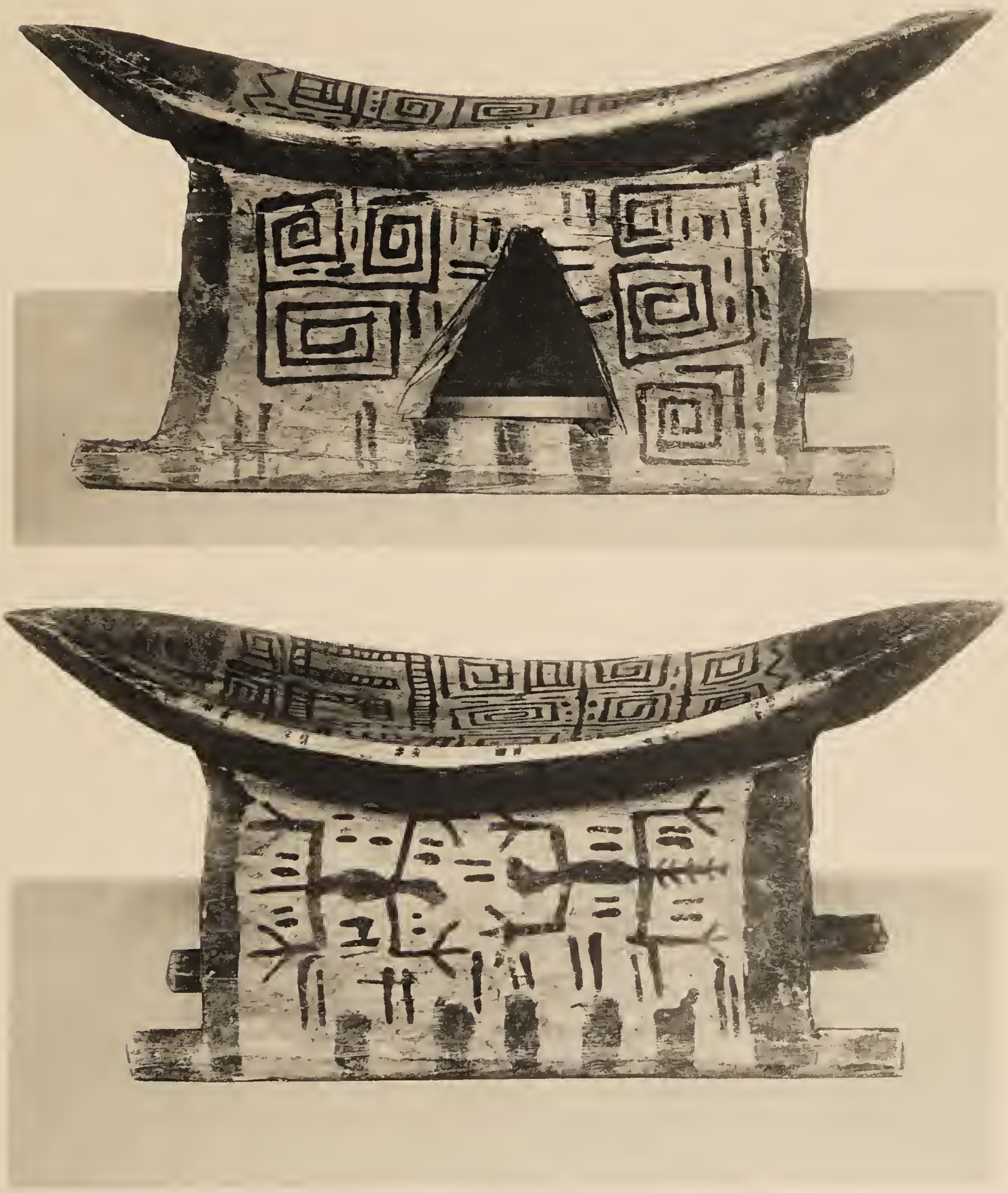
PLATE XXXV



A-B—MUSICAL INSTRUMENTS
C—KNIVES OF PECCARY TUSK

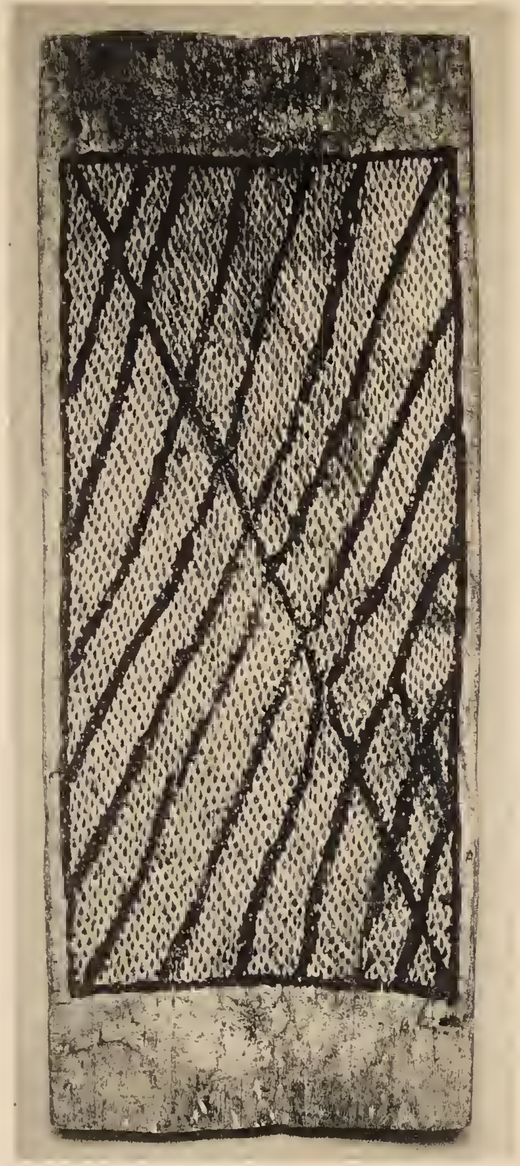
WAIWAI

PLATE XXXVI

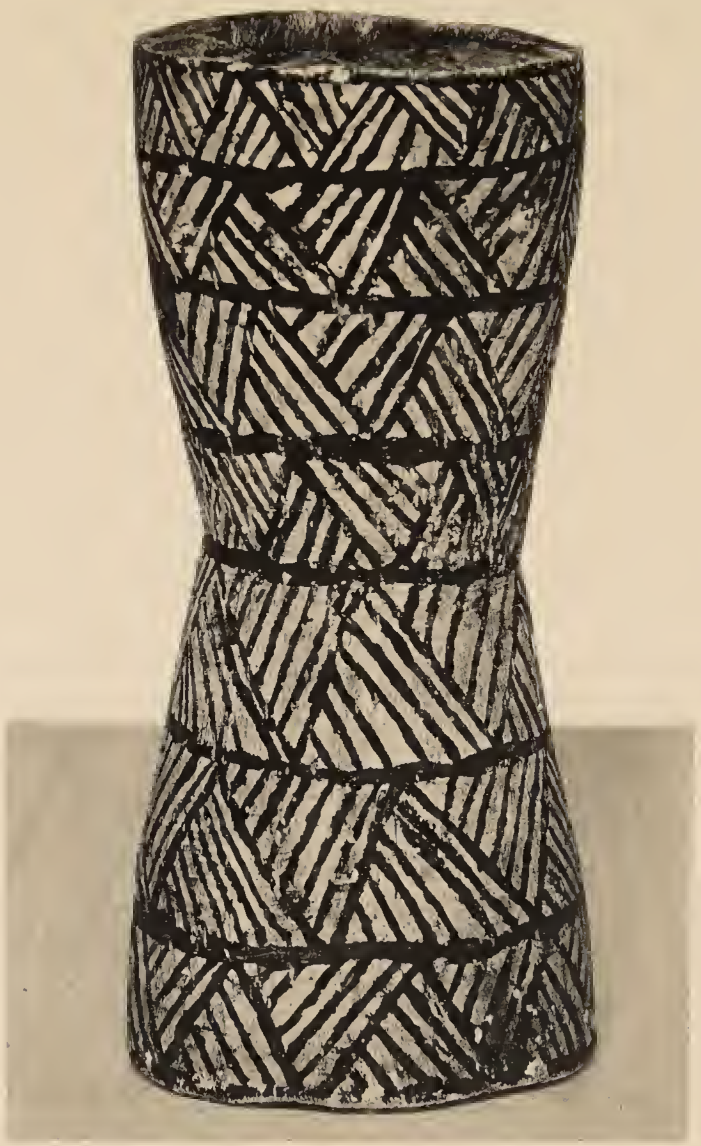


STOOLS

WAIWAI

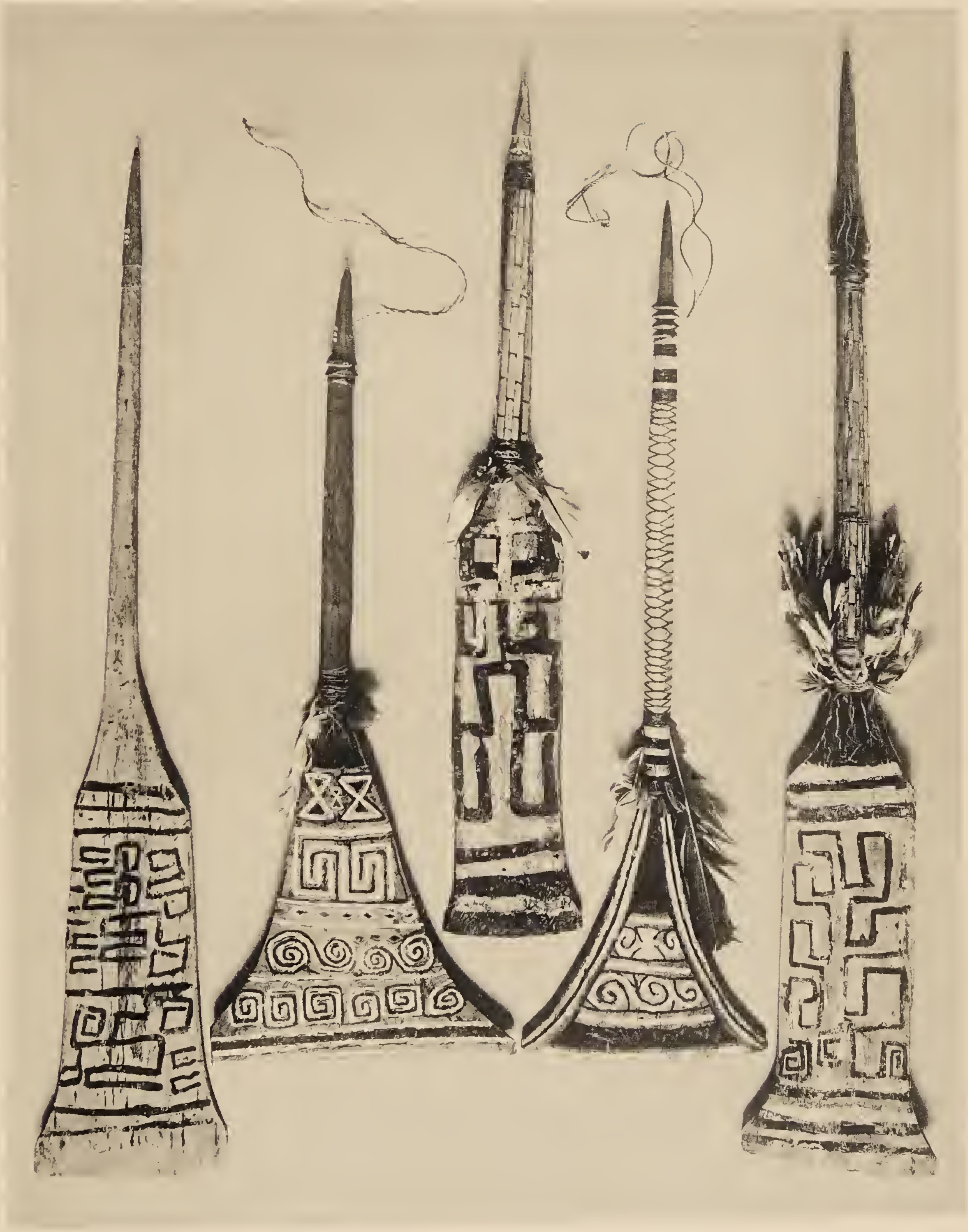


CASSAVA GRATER



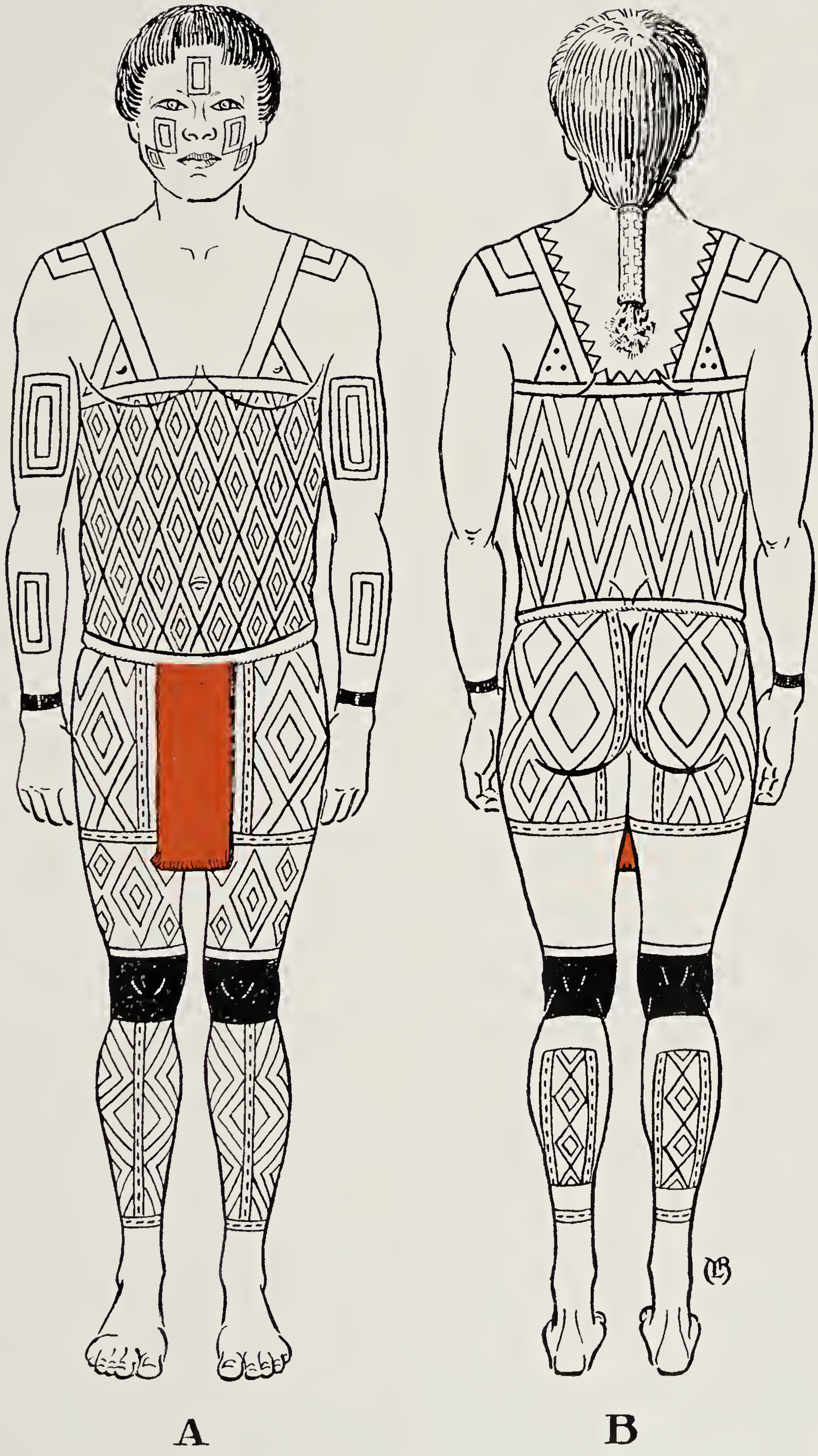
WOODEN MORTAR

WAIWAI



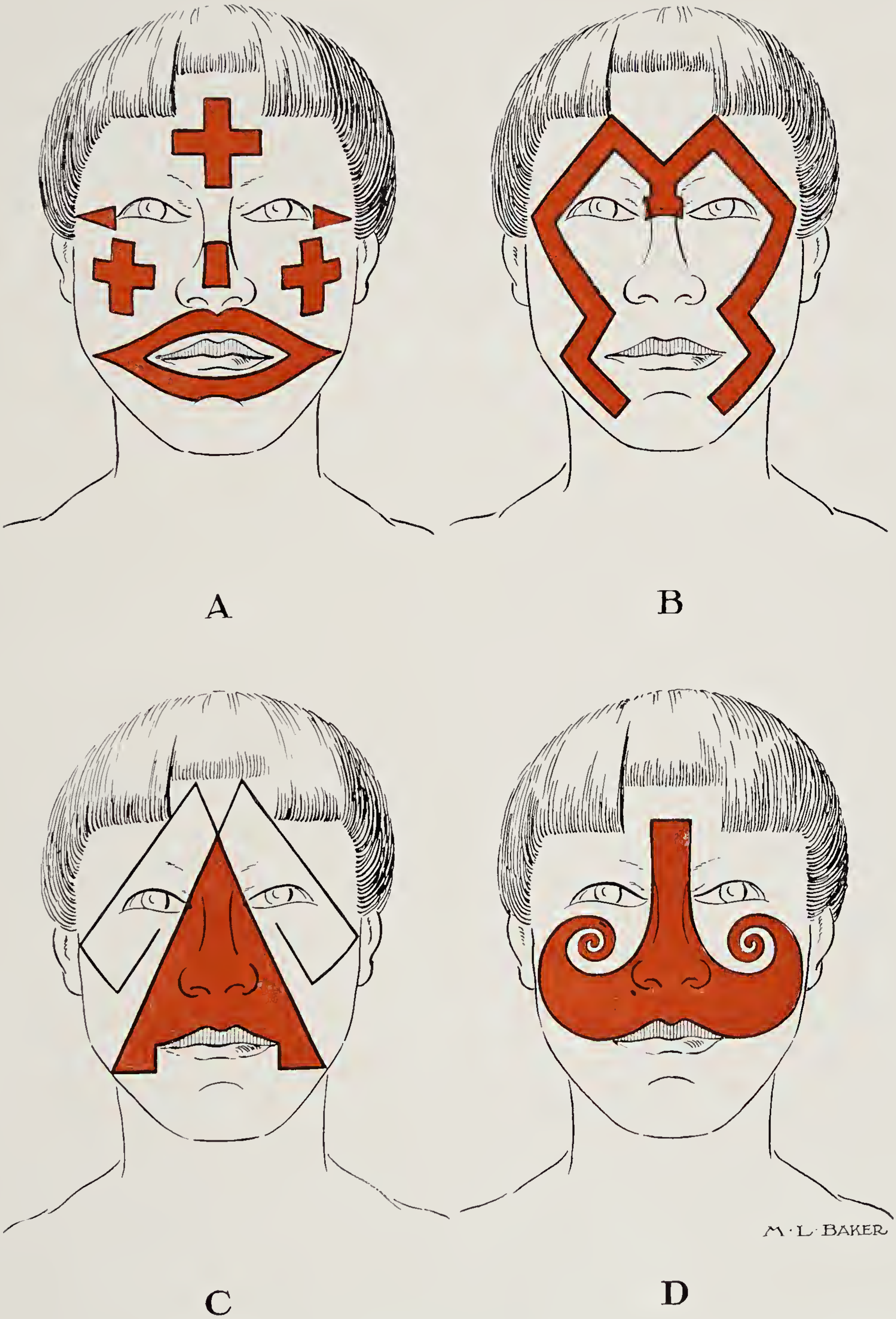
CEREMONIAL CLUBS
WAIWAI

PLATE XXXIX



WAIWAI BODY PAINTING

PLATE XL



Waiwai Face Painting

DATE DUE / DATE DE RETOUR

MAR [illegible]			
APR [illegible]			
MAR 2 9 1998			
DEC 0 6 1998			
DEC 0 6 1998			
[illegible]			
DEC 1 0 2004			
NOV 2 5 2011			

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